Medical Times

A Monthly Journal of Medicine, Surgery, and the Collateral Sciences

Vol. XLII., No. 10 NEW YORK, OCTOBER, 1914 Fifteen Cents a Copy One Dollar a Year

General Scientific

CARCINOMA OF THE BREAST. TUBERCULOUS PERITONITIS. EXTROPHY OF THE BLADDER.*

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Carcinoma of the Breast.

History: Patient, female, aged forty-three, comes to the hospital because of a "lump" in the breast. She first discovered this "lump" about six months ago while she was washing herself. It was at that time about the size of a walnut. Since then it has increased in size, has recently caused some pain of a transitory character and a great deal of mental distress. She recalls that about a year ago she struck her breast against the corner of a washboard.

The tumor occupies the upper outer quadrant of the left breast. It is about the size of an egg, very hard, adherent to the underlying muscle, and to the overlying skin. The nipple is distinctly retracted, and there are some palpable lymph-nodes in the left axilla.

There is no family history of cancer.

Diagnosis: There is no difficulty in diagnosing this case. This history tells the story; and to those who have seen a number of these cases it is a familiar story which varies little in its repetition. Note the age of the patient (the cancer cases are usually over forty)—

Fig.I.—Note Contracted Nipple as Compared with Normal Breast.

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the accidental discovery of the tumor; the recalling of a certain traumatism inflicted on the breast; the stony hardness; the adherence to the overlying skin and underlying muscle; the retracted nipple (Fig. 1) all point to advanced cancer.

The painlessness and absence of symptoms gave the patient a sense of security. She did not consult the physician until six months after the discovery of the tumor. Why? Because she was not ill, she did not suffer pain, she only had a harmless lump in the breast—surely such a terrible disease as cancer must give more pronounced symptoms! It is just here that we have a great fallacy to combat. *It is the insidiousness of cancer of which the public should be warned.* It is rare for a surgeon to see an early case of cancer. Patients wait months and months before seeking advice. They give the disease a chance to extend until its complete removal becomes a mechanical impossibility, and our results at the present time represent the treatment of advanced, not early cancer.

Patients don't delay in consulting the doctor when they have an earache or a stomachache. Why do patients with cancer procrastinate? Because, *early cancer presents no symptoms which suggests to the patient that he needs a doctor.* People go to the doctor because they suffer, and the seriousness of the illness is gauged by the amount of suffering. There is no suffering in early cancer. There is nothing to suggest disease. It is only later when the lump enlarges and pain begins, and the patient feels ill that she consults the doctor, and the doctor finds a case of advanced, not early cancer.

What is the remedy? Physicians must take a more radical stand and insist that every tumor in a woman's breast should *be removed.* We do not wait for the unmistakable signs of cancer, but we take the lump out to make the diagnosis. You cannot always make the diagnosis when the tumor is small, but the microscope can, and when the family physician is in doubt the patient has a right to demand the ultimate authority of the microscope. The case before us to-day is not an early one, the axillary lymph-nodes are already involved. The cancer has ceased to be local and has become regional.

Operation: No operation for cancer is adequate unless it includes the regional lymph-nodes. Hence, the modern operation for cancer contemplates the removal of the diseased breast with the affected contiguous structures and the axillary lymph-nodes. In certain advanced cases we also remove the supraclavicular lymph-nodes and the chain of lymphatics on the anterior surface of the rectus muscle to the umbilicus.

Fig. II.—The Author's Modification of the Halsted Incision

We therefore make an incision which gives us an adequate exposure of the gland and its regional lymphatics. The incision we employ is a modification of the Halsted incision (Fig. 11). It starts well above the anterior axillary border (the outer border of the pectoralis major muscle). This is important—the incision should never extend into the axillary space as the resulting scar will often contract and restrict the upward movement of the arm. The incision is curved about the inner border of the breast to its base. The first incision is joined by a second incision which curves about the outer border of the breast as seen in the illustration. The incision must be modified as the conditions demand, so as to be well beyond any affected skin. No attempt should be made to have sufficient skin flaps to cover in the wound if it involves the saving of doubtful skin. Get well beyond the margin of disease, and err on the side of safety. If there is a subsequent deficiency of skin-flap, it can be easily covered in with skin grafts.

The flaps of skin are now dissected away and the tendon of the pectoralic major muscle recognized. It is a simple matter for us now to work our index finger underneath the tendon of this muscle near its insertion into the humerus and detach it at that point (Fig. III). We now peel the muscle with the overlying gland away from the chest wall.

We next have the axilary lymph-nodes to dispose of. Here we must make a very careful and clean dissection. We must endeavor to leave no infected gland behind. *Do not forget here the importance of the pectoralis minor muscle.* It is the key to the situation. You remember it is a thin flat triangular muscle situated beneath the pectoralis major muscle, that it arises from the third, fourth and fifth ribs near their cartilages and passes upward and outward to be inserted by a flat tendon into the coracoid process of the scapula. It is behind this muscular curtain that the axillary vessels, nerves, and lymphatics are screened. We must therefore divide this muscle in order to get a proper exposure of the part. We find that there is quite a mass of enlarged glands which we proceed to dissect away from the vessels, beginning with the outermost tissues and working inward. You now observe the axillary vein. It should be exposed early in order that it may not be wounded. We carefully dissect away this mass of glands and fat, ligating the branches of the great vessels as we go along (Fig. IV) until we have a clean axillary space and can remove the gland, muscle and axillary

Fig. IV.—Complete Dissection of Axillary Space and Ligation of Vessels

contents en masse. We shall now attend to the ligation of the vessels being sure to make our hemostasis as perfect as possible, because at best there is a large amount of oozing that cannot be controlled. This is provided for by placing a rubber drainage tube in the axillary flap. We now suture the skin flaps covering the wound completely if possible, if not, applying skin flaps to the central deficiency (Fig. V). In the dressing of this wound the arm should be placed in a sling in order to

Fig III.—Identification and Detachment of the Tendon of the Pectoralis Major Muscle Near Its Insertion into the Humerus

Fig. V.—Closure of Wound, Application of Skin Grafts to Central Deficiency and Insertion of Drainage Tube.

secure perfect rest to the parts. If all goes well the patient will be out of bed on the second day, and the wound will be healed in a week.

Question: Is cancer hereditary?

Answer: No.

Question: Why does it occur in certain families?

Answer: Disease is not inherited, but this is what is inherited—certain kinds of tissue you get from your ancestors which form a suitable soil for certain kinds

of diseases to grow in. You may compare people to the trees of the forest, the trees are all similar in root, trunk, bark, branch and leaves, and yet there is an essential difference which we can't demonstrate but which we know by practical experience. We know that one is an oak, and another is a pine, and you can't do with a pine tree what you can do with an oak, and surgery can't do for a pine man what it can do for an oak man. Just as certain plants;—some require a sandy, others a loamy soil in which to grow, so cancer prefers the kind of soil which is found in the tissues of certain families. Hence it is the soil not the seed; the tissues not the disease that is inherited. It is the invitation to disease that resides in the tissues of certain families. Heredity is only tissue potentiality.

Tuberculous Peritonitis.

History: Patient female, aged thirteen, enters the hospital because of pain and tenderness in the right iliac region, which has lasted for a week.

Temperature on admission 101, pulse 100, respiration 25. For the past six months she has been feeling tired and weak; has had no appetite, and there have been transient pains in the abdomen.

A week ago she consulted a physician who diagnosed her condition as acute appendicitis and ordered her to bed. She has had measles, whooping cough and mumps. Her family history is negative.

Examination: There is marked tenderness in the right iliac region, some rigidity of the right rectus muscle and a distinct mass which is somewhat elongated and extends up toward the liver. Heart and lungs are negative.

Diagnosis: Note very carefully the history of this case, it is intensely significant. After all the history tells the story of the disease, and diagnosis is just chrystallizing the history and clinical findings into a pathological entity. However good the history, it is useless without the trained mind to interpret it. The highest skill is required not at the operating table but in *the fine art of diagnosis.*

Observe that the history presents two phases, an acute, and a chronic phase. The acute phase is noted in the pain, rigidity and mass in the right iliac fossa with elevation of temperature and pulse. These symptoms are undoubtedly significant of appendicitis.

Note again the chronicity of the second phase—*For the past six months* the patient has not been normal—she complained of loss of appetite, general malaise, loss of weight, transient pains in the abdomen. The acute symptoms which sent her to the hospital are screening a chronic process which must be revealed in the pathological findings.

Operation: We shall make the incision along the outer border of the right rectus muscle for two reasons; first, it is directly over the tumor-mass; secondly, if this is a case of appendical abscess we shall need a wide exposure to properly evacuate it, and protect the neighboring viscera. The right rectus incision permits us to extend the incision either up or down without injury to the abdominal musculature. We never use the gridiron incision of McBurney for appendicitis except in the male and then only in presumably clean cases. The McBurney incision is limited to a small field and cannot be extended without weakening the abdominal wall. On approaching the peritoneum we note that it is adherent to the underlying mass. As we open the peritoneum the tumor has the appearance of intestinal coils in a mass of exudate. As we carefully isolate the mass it resembles in shape a "Reidel's Lobe" running up toward the liver, but upon further investigation it is found to be the omentum rolled up in a mass of exudate extending to the transverse colon. There is also a quantity of straw colored fluid which we proceed to evacuate. The intestines now coming into view are studied with tubercles and the findings present a striking picture of *tuberculous peritonitis.* We must now endeavor to determine the origin of the infection—this is most frequently *the Fallopian tube in women* and *the vermiform appendix in men.* We examine both of these organs and find neither affected. The origin is probably intestinal. We now flush the intestines and abdominal cavity with a 50 per cent. solution of Peroxide of Hydrogen, rinse with normal saline solution and close the abdomen *without drainage.*

Comment: The striking features of this case are first, the seemingly misleading history which at first glance points to appendicitis. However when properly correlated and interpreted it is evident that the acute symptoms were only screening a chronic process, and that the pathological findings are in perfect accord with the symptoms. Second, the findings show that in this case two distinct forms of tuberculous peritonitis exist —*the ascitic form* characterized by the presence of serous fluid and the peritoneal surface studded with tubercles; the adhesive form as shown in the tumor-mass which we demonstrated as the omentum rolled up in a mass of exudate.

Regarding the treatment, it has been shown that about one-third of all cases of tuberculous peritonitis recover spontaneously or without operative treatment, however, the improvement which follows simple laparotomy is often remarkable, due to some reactive changes which have not been explained. It is wiser however at the onset to follow a conservative course and try the open air and *x*-ray treatment before resorting to laparotomy. If improvement is not steady after a trial of these measures for three months, resort to operation. The operation is simple. The abdomen is opened in the median line below the umbilicus, and the straw-colored fluid allowed to drain away. If on inspection the Fallopian tube or the appendix is found to be the primary focus it should be removed. The wound should be closed throughout. No drainage tube is employed as it favors the formation of a sinus, and in some cases a fecal fistula.

Extrophy of the Bladder.

History: Patient, female, two days old, enters the hospital because of a "bleeding tumor" situated at the symphysis pubis. (Fig. VI). The patient is not a full-term baby, the birth was from four to six weeks premature. There is no family history of congenital deformity.

Fig. VI.—Extrophy of the Bladder.

Examination: Note the situation and character of this soft, red, moist "tumor."

At the symphysis pubic there is a fissure, the pelvic

ring is incomplete, just above this point is situated the tumor, it is red, and moist, and shining like mucous membrane; it is undoubtedly the mucous lining of the posterior wall of the bladder pushed forward by the pressure of the intestines. The irritated mucous membrane is very vulnerable and bleeds easily. The protruding bladder wall is not reduced spontaneously, it may, however, be forced back by means of a tampon, but bulges out as soon as the pressure is removed.

Note in the region of the trigone the two uretheral orifices from which urine is discharging in rhythmical ejaculations. With this malformation we find in boys a rudimentary penis with total epispadias and undescended testicle on one or both sides. In the female, as you will note in this case, the urethra is deprived of its roof and is represented by a groove. You see that the labia majora and minora are entirely separated and hence the anterior commissure of the vulva is absent. This is a case of exstrophy of the bladder. It is a congenital defect. Nature did not have time to complete her work. The child was born before the body was ready for its task; and so there is presented to us a problem of great difficulty.

The Problem. As a result of this malformation there is constant dribbling of urine which soils the clothes, excoriates the skin, and envelops the patient with a disgusting odor. Besides, this inflammation of the vesical mucosa renders the patient liable to an ascending pyelonephritis from infection through the orifices of the ureters. Thus the patient is impossible as a social unit, the mortality is very great from constant irritation and infection of the urinary tract, and these patients are sexually impotent.

Comment on Treatment: How shall we handle this difficult problem? It is obvious that the first indication is to allay the irritating symptoms by protecting the exposed vesical mucosa from injury, by providing sanitary dressings for the incontinence, and by assuaging the painful excorations of the adjacent skin with suitable ointments.

As to *operative relief* it must be stated at the onset that the treatment of this condition by operative measures is discouraging. The multiplicity of the operative procedures suggested is sufficient proof of their inadequacy. We have to confess that surgical ingenuity has not as yet devised a satisfactory reconstruction of the bladder and urethra, with a functionating sphincter to prevent incontinence.

Among the many operative procedures proposed we may confidently say that the best method is the one that diverts the urinary channel into the lower bowel. The procedure of Maydl consists in excising from the bladder wall its trigone with ureters and their openings, and implanting the whole into the wall of the sigmoid flexure. The remainder of the bladder is dissected out and the abdominal defect is permanently closed.

It is obvious that this operative procedure fulfills in a large measure the requirements which permanent relief demand. The urine drains into the rectum, where tolerance of its presence is acquired, and it may be retained for three or four hours under control of the anal sphincter. Thus by the same operation the vesical hernia is repaired and the incontinence cured.

The objections to the operation are: its complicated technique which renders it too serious to be undertaken in young infants; the danger of hydronephrosis from kinking the ureters as the trigone is turned on an axis of one hundred and eighty degrees in implanting it into the bowel wall; and lastly the danger of pyelonephritis by infection from the bowel extending into the ureters and renal pelvis.

In managing these cases it is wiser to abstain from operative relief during the early years of life until the child has acquired sufficient resistance to safely bear an operation so extensive as the implantation of the ureters into the bowel. The horrible character of the deformity warrants the risk of any operation which promises relief. In the meantime instruct the parents to keep the child as clean as possible by the use of ointments to prevent excoriations of the skin; by protecting the bladder mucosa with sterile gauze compresses to prevent contact with the clothes; and to create the most favorable conditions possible for subsequent operation.

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MEDICO-LEGAL ASPECTS OF EUGENICS.*

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Eugenics rests on heredity; so I may be permitted to speak first on this topic.

1. It is necessary first to get rid of a mass of false ideas that have become associated with the terms. Strictly we do not inherit from our parents, grandparents or anybody. It is just as correct (or incorrect) to say I inherit the color of my eyes from my son as to say he inherits it from me.

As the successive strawberry plants that arise from a runner do not inherit their characters from the next older, but all from the stolon or runner common to all so the successive generations of one family derive their traits from the common germ plasm which is carried in the body and is not made by the body, but is a piece of the fertilized egg that never went into the formation of the body proper. Both parent and child get their eye color from the same germ plasm and are, hence, alike.

Strictly we do not inherit *characters*. It is a figure of speech to say my daughter has my nose. There is no nose in the germ plasm. We inherit *determiners* for the trait.

The germ cells of a parent only one of whose parents had the determiner for brown pigment are of two kinds: with and without brown pigment. If both parents are of this sort, then there will be produced some children with and some without brown iris pigmentation.

A strictly homogeneous species is one in which all the germ-cells carry the same determiners. Any fertilization is, therefore, of similar determiners and the progeny are all alike and like the parents. In man this homogeneity is never realized; man is tremendously hybridized. There are brown eyed Italians and blue eyed Scandinavians; short Calabrians and tall Scotch; straight haired Japanese and curly haired Negroes; those who are color blind and those who can distinguish colors; those whose brains develop fully mentally and those whose brains can not; those who have inhibitions that make it easy to sidetrack action when the stimulus is offered and those who have no inhibitions; for example, those who would never think of taking what did not belong to them and those who take what they desire, no matter to whom it belongs, just as a monkey does. These differences are not incidental, due to some accident of environment—they are *fundamental;* they are the marks of distinct species, for these differences are inheritable differences and may be traced through the generations.

Yet our works of anatomy and physiology and psychology do not recognize sufficiently this lack of homo-

*Read before the Society of Medical Jurisprudence, April 13, 1914.

geneity—they tend to describe certain conditions, call them *"normal"* and neglect the others or refer to them in an appendix as *abnormal*. Even the law recognizes men as equal. But if this means *alike* the law is certainly, here again, not in accord with the truth and justice.

The punishment for a misdemeanor is supposed to be the same for all; but for a poor person the fine may mean going without some of the necessities of life, or loss of liberty for months; for a millionaire it may mean only the loss of time in making out a check. The "penalty" is really unequal.

The punishment for petit larceny is thus and so whether the person was able to resist the temptation or not; the "desert" of the punishment or the "responsibility" for the crime is very different.

The absence of homogeneity greatly complicates medicine and law. We strive to bring homogeneity about in the population by segregating some and placing them under special care. But, alas! this is like trying to put out a fire by pouring water on it while immigration is the oil poured on the flame from behind. Even if we purify "our breeding stock" this would be only about half of our duty to posterity for each year brings to our shores, by immigration, a number of persons, at least half as great as that of the children born of the stock already here. We are interested in breeding better babies; is it not time we were paying adequate attention to the quality of our most prolific breeding stock? Five hundred thousand potential marriage pairs will probably enter the United States this year. Of these a few dozen idiots and feebleminded; perhaps 200 insane, two or three thousand diseased persons, 10,000 to 15,000 paupers, a few hundred criminals, and prostitutes and procurers will be excluded; but about the rest we shall know practically nothing. Their germ plasm may contain the elements that start here strains of chorea, paranoia, dementia precox, violent outbursts of temper with or without suicidal or homocidal impulses, violent eroticism, extreme indolence; waywardness, night blindness, amaurotic family idiocy, cataract, congenital heart defect, diabetes and a hundred other hereditary defects that will entail suffering on ever increasing numbers of their descendants and add to our social problems. The true nature of the biotypes to which these persons belong could be determined in their native country in a few hours; and, practically, without expense to the general government. Yet, through blindness to the importance of blood, through a reliance on the false doctrine that all men are born *equal*, we are, in our stupidity, warming in our breast the serpent that may some day strike a death blow to American civilization; as the slaves imported to Rome were a true cause of her downfall.

2. We all seek the advancement of our civilization, in order that our children may have a world to live in which, compared with that we live in, shall be as good, if not better. We strive to bring this about by a hundred social influences—schools, churches, associations, and uplift magazines. These are all good, so far as they go, but their potentialities are limited by the innate capacities of the persons upon whom these agencies act. Schools are good for those who have intelligence and a capacity of developing in the direction laid down by the schoolmaster's task, but for others, they are of little use. I would, however, regard as somewhat extreme the folk saying that education is of use only for those that have no need of it. Churches and religious exercises are to cultivate the emotions; while ethics seeks particularly to cultivate the inhibitions. These are effective in inducing morality only when emotional control is possible—they do not provide the inhibitory mechanism. Sometimes, in the absence of inhibitions, they successfully control one emotion by another, a sort of counter-irritant. Thus the love of alcohol may be eclipsed by the development of strong religious impulses. But these results are not common. At least in many persons inhibitions are entirely absent so that no religious appeal will provide them.

It is then not merely religion, ethics and education that determine our civilization but the capacity for taking advantage of these agencies—and this capacity is inheritable, racial.

3. *Heredity and Marriage.* Marriage is society's attempt at control over reproduction. It provides for registration of the intention to form a family. The state maintains the right of veto of a proposed marriage, thus virtually committing itself to the view that it does make a difference who marries whom. About half of the states make illegal a marriage of which either party is an idiot, an imbecile, or insane. Some deny marriage to the epileptic also. In many of these cases the prohibition is based primarily on eugenical grounds *i. e.* on the danger to offspring.

Again, practically every state denies marriage to full brothers and sisters, to child and parent, and grandchild and parent. Most also prohibit the marriage of child and the brother or sister of its parent. Over one-third of the states prohibit the marriage of first cousins. Why do these laws exist? One might think it is because of some fear that the children of such consanguineous marriages would be apt to be defective. On the other hand, there is, in many states, a similar prohibition within certain degrees of affinity when there is no blood relationship. That leads one to think that the laws are intended to protect monogamy and diminish causes for divorce. You are married and can never hope to marry any of these relatives of your wife whom you have come to know so intimately. Thus many states forbid the marriage of a man to his step-child, and of a man and his mother-in-law. Same states carry these prohibitions to an extraordinary degree. Thus, in West Virginia, the marriage of a woman with the husband of her brother's deceased daughter is forbidden, although in this state a man may marry his brother's widow. These laws seem to be a heritage from the Jewish and Roman laws which knew little of biology. It would probably conduce to morals and respect for law if all these non-biological limitations to marriage were wiped off the statute books; and only consanguineous marriages considered.

Are cousin marriages permissible biologically?—do the legal limitations square with our biological knowledge? We know so many cousin marriages that have produced only normal children that we can not assert that cousin marriage, *per se*, is dangerous to offspring; but if the common blood contains some defect, that defect will fall upon a large proportion of the children.

If biological knowledge and the law conflict, which should guide action? If a person in Pennsylvania has made a careful record of his family traits and it is evident that the common blood contains no germinal defect so that it is quite certain that the chance of defective offspring is small, smaller than in random marriage, are they justified in marrying despite the state prohibitions?—especially as they could marry legally in the adjacent states of New York, New Jersey, Delaware, Maryland and West Virginia.

Miscegenation. Three-fifths of our states forbid intermarriage between races. This includes all of the Southern States. In many of the northern states the marriage with Mongolians also is prohibited. Nevada

prohibits the marriage of whites with Ethiopians, Malays, Mongolians and American Indians. But in most states the presence of negro blood in the ancestry ceases to be a bar to marriage when the proportion of such blood is less than one-eighth. In Virginia the limit of forbidden degree is set at one-fourth of Negro blood. The undesirability of mulattoes is generally recognized and need not be urged; but we have in America several millions of hybrids of one degree or another between whites and blacks; and probably as many as two million persons with some negro blood, but with less than one-half. It is a question—a biological question—that confronts us: should all such persons be forbidden legal marriage with whites until (through *illegal* unions) their blood has reached a certain dilution, or may certain of them be permitted to marry if the social defects of the negro ancestry seem to have been eliminated from their germ plasm?

In place of marriage laws, which cannot be made flexible enough to cover the facts, I would urge control of marriages by a State Eugenics Board; even as I urged it in Bulletin No. 9 of the Eugenics Record Office.

a. The State Eugenics Board.

This body, which should comprise a trained biologist, a general practicing physician of experience, and a general practitioner of law of broad experience should devote its entire time to its duties. It should appoint the State official physicians and the field workers, and direct the administrative office and records of the Board. To it should be referred for decision all questions of the granting of licenses in cases where special consideration is clearly required. The vast majority of marriages in any State will not be considered by a board. If 10 per cent. were, that would mean for New York State about 10,000, or 30 a working day; for Ohio, about 5,000; for Kansas and Virginia, about 1,700 per year each.

b. The Official Physicians of the State.

These should be designated by the Eugenics Board from among the general practicing physicians of each community. Since only about 16 persons (8 pairs) are married each year per thousand of the population, and since a physician could consider on the average, say, two a week without greatly interfering with his other engagements, one official physician could certainly take care of a population of 10,000 and, in large cities, the proportion could be increased to one in 25,000 or even 50,000 of the population. In a State like New York, with 9,113,000 inhabitants, about 500 official physicians would be required, those in the largest cities giving their whole time to the work of the Eugenics Board. The official physician should receive applications for licenses to marry; he should direct field workers to report on the family histories of the applicants with respect to the points covered by the law; he should, where the law requires a certificate of health, examine and certify such of the applicants as are of the same sex as the official physician, and secure a report upon the physical condition of the other applicant from a physician of the same sex as said applicant. If the findings of the field workers and those of the physical examination are both favorable, the license shall be furnished forthwith. If either or both the family history and the physical examination are such that there may be reasonable doubt as to the quality of the offspring, the case, with findings, must be laid before the Eugenics Board.

If it is clear that the license cannot be granted legally, the application is denied forthwith and the applicants are fully instructed as to the reasons why the license cannot be granted, particularly the danger to progeny if the marriage were consummated. A written statement of the reasons for refusing the license is to be sent to the parent or guardian of each of the applicants. Appeal may be made to the Eugenics Board. In case the application is referred to the Eugenics Board and the reply from the Board is favorable, the license is granted forthwith; but in case it is unfavorable, the applicants and their guardians shall be instructed as above.

c. The Field Workers.

These shall be appointed by the board. They shall, where necessary, and under the orders of the official physician to whom they are assigned, visit the homes of the two applicants for each license, and inquire into and report upon the existence in the family of the undesirable mental and physical conditions which the law seeks to eliminate from the race; they shall build up an index to the occurrence in the population of those traits of which the law takes cognizance, in order that, the facts being ascertained, the families concerned may be saved needless inconvenience. Duplicates of such index should be sent to the office of the State Board of Eugenics, and a third set may be deposited with a national and international depository of eugenical data, like the Eugenics Record Office.

The work of the State Eugenics Bureau and its officers may be illustrated by an example. A young man and a young woman present themselves (with an application for a marriage license) to a State physician. If the law requires a medical certificate, he examines the young man and requires from the young woman a report of examination by a reputable woman physician. He examines his files for data concerning the family histories of the applicants, so far as they bear on the traits of which the law takes cognizance. If he finds insufficient data he calls for a report from the field worker within three days. If personal and family histories are satisfactory, he issues the license forthwith to the applicants. If, on the contrary, the young man be found to be suffering from gonorrhea, the application is forthwith denied. If the field worker reports that the father of the young man and the mother of the young woman were brother and sister, and both were victims of manic-depressive insanity in a bad form, the application is likewise denied, with a full explanation of the reasons therefor. But if the young man have an epileptic brother or sister and no neurosis appear in the young woman, who is a second cousin of the young man, and if the family history is otherwise such that the physician is doubtful as to the decision he should render, the matter is referred by him to the State Board, who, after examining all the papers in the case and by the use of its own index to families of the State renders a decision with the least possible delay.

For those persons who, despite a denial of marriage by the State, cohabit and have a child, the penalty should be sterilization of the male. And the father should be obliged to support the mother and child during their periods of dependency. An official who has not exercised reasonable judgment in issuing licenses is to be deprived of his office and rendered unable thereafter to hold public office.

With the Eugenics Board should be left the execution of all laws limiting procreation, both inside the marital relation and outside. It is probable that the expenses of the board, physicians and field workers could be met by the license fee of an amount that would not be prohibitive. Thus a fee of ten dollars would bring an income of $1,000,000 to the State of New York, and

this would probably meet a large share of the expenses of the undertaking.

May the State intervene to prevent certain marriages; or to require certain things before granting a marriage license? I would urge that it may, on the following grounds:

First, the germ-cells do not belong to a person in the same way that his hair, or his stomach do. The germ-cells are part of the fertilized egg out of which he developed, that has remained behind in an undeveloped condition in the body, until, at maturity it begins to form the ripe germ-cells. At the same time, apparently, material is secreted from the germ-gland that gets into the blood and stimulates certain centers in the central nervous system and leads to the sex-impulse. Most persons are provided with an inhibition to the sex-impulses, which, if properly developed, may permit continence; and it is desirable that such an inhibitory mechanism should be kept in the best working order. By it the individual is able to satisfy his trusteeship of the germ-cells in the same way as Mr. J. P. Morgan is able to fulfill his trusteeship of funds placed in his charge. But there are certain persons who could not be trusted with funds—as they have no means of inhibiting their desire to spend them foolishly. So there are those who have no means of inhibiting their sex desires—their trusteeship is forfeited—they can not be blamed; their organism was unable to carry the strain placed upon it. Now, as the state examines all accounts of mercenary trust funds and appoints a receiver for any person that is not able to fulfill his trusteeship, so the state has a right to lay down laws concerning the use of the germ-cells and to place under custodial care those who can not use them properly. For the germ cells do not belong to the individual who carries them, they belong to *society;* the future of the state depends on them. Also the union of germ-cells is not alone a *personal* matter, for the children will arise from the fertilized egg and they have *rights.* The state may leave these rights in the hands of *adequately equipped parents,* but there is another kind of parent. The state can not give up its duty of carefully considering the rights of the unborn child; the rights of the child who is to be conceived—and one of these rights is a good heredity—good resistence to disease, and good capacity for playing its part in the world. This is the highest and the most sacred duty of the state. Do you think the state is fulfilling this duty adequately?

4. *Heredity, crime and responsibility.*

On this subject I have elsewhere[1] written as follows:

"Consideration of the inequalities of persons 'before the law' involves an examination of the foundations of law and society. Again and again, in various parts of the world, men have come together in communal life for physical and moral support, responding to a gregarious instinct. A leader is selected to enforce these communal customs that past experiences have proved to be favorable to the community. Moral law is merely this: behavior that is favorable for the specific community is 'good;' behavior that is harmful for the community is 'bad.' Good and bad thus refer to conduct which is judged in its relation to the experiences, traditions and ideals of the given community.

"Now, conduct is reaction to a stimulus; what the reaction shall be depends not only on the stimulus, but also on the nature of the reacting protoplasm; particularly, in man, of the senso-neuro-muscular complex. While in the young the relation of stimulus to reaction is relatively simple, during development there appears, most markedly in gregarious species, an inhibitory mechanism by which the expected reaction may be stopped. The inhibitory mechanism (aside from its usefulness to the individual) is a device for protecting the community from reactions that, however favorable originally to the individual, are anti-social. Children at birth have the inhibitors undeveloped, but they have a marvelous capacity for acquiring them in some or all forms. Many a person, however, unfortunately for himself and society, is incapable of acquiring the full complement of them; he tends constantly or periodically, throughout life and despite the best training, to react directly to the stimulus that falls upon him, anti-social though the reaction may be. Such a person may have perfect 'society manners' and be faithful in conjugal relations but on occasion will take from shops articles for which she has no need; or another is regarded as a valuable member of his community, a leading member of the bar and a pillar of the church, but about once a year consumes a nearly lethal quantity of alcoholic drinks; or another is an agreeable, generous, affectionate young fellow who, about once a month, secretly sets fire to buildings in order to feed an irresistible love of the excitement produced by the flames; or a young girl who does well at school starts out from a comfortable home ostensibly to go to Sunday School, but makes it a practise of spending the afternoon in the rooms of some marines; or a lad of refined home, beloved of his parents and loving them, slips out of doors instead of going to bed at night and sleeps in entry ways or wanders out into the country and spends the night in a barn. These are examples, among hundreds that could be cited, of a lack of specific inhibitions. The stimulus can not be shunted off; it must lead to the specific response. Just as the amoeba throws out its pseudopods along the path of the incident ray and so moves from the source of light; as the moth flies towards the candle; as the carrion fly is directed in its movements by the scent wafted to it from afar, so such persons perform their unsocial acts as part of their necessary reactions."

"In another set of cases every reaction to a stimulus is of a socially desirable sort. All desires for the property of others, all inclinations to avenge insult by violence, all tastes and appetites, including the sex instinct, are readily inhibited—are under perfect control. And why are they under control? Because, first, the person who has the inhibitors came from a fertilized egg that carried the determiners for them; and, secondly, was surrounded by influences that were favorable to their development. In what sense can these people be held to be equal before the law with those considered in the preceding paragraph?"

"Even in numerous elements of mood and behavior the influence of the hereditary make-up is striking. One person is prevailingly elated, jovial, irrepressible; another quiet, depressed, melancholic; another, still, alternates in these moods and when elated he believes he can do anything, but when depressed a sense of helplessness overpowers him. Again, one person is original and independent while another is always imitative. Here is a famous lecturer who has quelled mobs with his eloquence but who is prevailingly diffident; while there is a woman who has lived always in the backwoods and is as forward as a Canada Jay. Sincerity or insincerity, generosity or stinginess, gregariousness or seclusiveness, truthfulness or untruthfulness, are all qualities whose presence or absence is determined largely by the factor of heredity. The way a person reacts to a given stimulation is, thus, determined by

[1] *Popular Science Monthly.*

the germinal determinants that have fallen to his lot and the training and experience that have favored or repressed the complete development and fruition of such determiners. The self-control which he realizes he is exercising at any moment is a part of his involuntary reaction. And the individual can no more alter his reaction than he can pull himself up by his boot-straps."

"How opposed is the conclusion, to which we seem logically forced, to the theory of organized society as carried out in its laws and in its treatment of persons! Here are two men, one whose reactions are all social; the other whose reactions are prevailingly antisocial. The first we praise, we heap with honors, we supply with the good things of life. The other we condemn, we hold him culpable, we confine him to a cell seven feet by four with little air and less daylight, and we feed him with the poorest food. We are rewarding the one and 'punishing' the other. Yet each has turned out the necessary product of his own organism under the conditions in which it has developed. Neither exercised any selection of the elementary constitution of his organism, which was decided at the time the two germ cells united; neither had any control over the conditions of early development of the determiners, over his early education and the development of the germs, if any, of inhibitions. If the reactions of the organism are socially 'good,' fortunate that person; if he 'elects' to study hard and prolong his education he does so because of a liking or ambition for which he is in no way responsible. Society does well to care for the good organism, to preserve it from overwork, from accident, from corroding influences. If, on the other hand, the reactions of the organism are socially 'bad,' unfortunate that person; if he 'selects' bad companions and runs away from school, his reaction is in such case a necessary consequence of his make up. Society does well to restrict the product of the bad organism, protect society from it, or, if it seems best, to send it to the scrap heap. No doubt there are persons who are trainable, but have not had their inhibitions cultivated. It is sometimes possible to develop these dormant germs even relatively late in life. The infliction of pain is occasionally of educative value even in youth at the age of puberty. In other words punishment for crime may have, in some cases, a deterrent effect. But to punish the organism for an anti-social or 'bad' reaction just because it is 'bad' and in proportion to its badness (as we habitually do in the courts) is just as reasonable as the act of the little child who flogs his broken hobby horse because it no longer goes."

"When a crime is committed society's first query is: Who is culpable? Let us find him and he shall be punished. The police officer bribed the gunman to slay the Jew. Who is culpable? The gunman? He reacted to the bribe in a fashion that was predetermined from his make-up and training. In his sordid way the policeman knew whom he could bribe. We can not blame the gunman any more than we blame the tiger. The police officer, then? No, he reacted to the stimulus of greed and fear that was predetermined from his make-up and training; the bear at bay would do the same. The responsibility goes back to society that permits the combinations to be made that react in this fashion and, after such combinations are made, fails to protect itself against their reactions. But, if these offenders are not culpable may they not be freed? By no means. These organisms are, as their product proves, bad; send them to the scrap heap. In general, if the trespasser has been apprehended, consider both the stimulus and the reaction. If it appears probable that there are undeveloped inhibitors the state should supply the training that may develop them. If not, the person should be permanently segregated from society, while his life should be made as happy and useful as possible; or else he should be entirely cut off. Especially should he not be permitted to reproduce his defects."

Since the above was written the fact has been ascertained that the tendency to tantrums or outbursts of temper in adults, to uncontrollable eroticism, to nomadism, to alcoholism all have a clear-cut hereditary factor, one that is, indeed, almost determinative.

5. *Degeneracy and its treatment.*

Most feeblemindedness, most feeble inhibitionness, many kinds of insanity have an inheritable basis and cannot be helped by better conditions. There are only two satisfactory ways of meeting them, (1) by segregation and this if carried out fully involves enormous expense, and (2) sterilization, and this although a legal method in twelve states has little popular support as it is actually applied in few cases. Yet, in a judicious extension of these two methods the solution of our problem of heredity of degeneracy lies.

6. *Eugenics and Professional Secrecy.*

On this subject I have already written[2], and I cannot do better than to quote from an earlier lecture:

"It is the duty of a physician in the exercise of his broad function as eugenist, to warn young people who are contemplating a choice that is clearly unfit. The rule of secrecy in family affairs enjoined on physicians should not apply to prevent a physician from speaking in such cases, even as the laws in some states are requiring him to report venereal disease. Any rule of secrecy which acts against the progress of society, and especially against fitness for marriage is a grossly antisocial, immoral law, and should be repealed. Not infrequently the student of the heredity of a characteristic has to ask the physician concerning the occurrence of a characteristic in a given person, A. B., whom the student knows only as the name appears in some pedigree with which he is working. Occasionally the physician, usually a young man, declines to assist on the ground that he is not at liberty to give the desired information. Knowledge that might well lead to conclusions of great import to humanity is withheld in the blind following of a rule whose main motive is praiseworthy, but whose application is too broad. Inheritable traits are not personal property. They come to the individual from down the ages out of the society of the past; they will be disseminated, if the person or his fraternity have children, into the society of the future. What right has the momentary possessor of the trait to claim it as his private and personal affair? A knowledge of his traits belongs to society; is it not wrong for the medical profession to maintain these false ideals of the private nature of inheritable traits?"

"If the defense is that physicians must protect those by whom they are paid even at the expense of society, then the sooner the state takes over the whole matter of private as well as public sanitation, the better. A relation that was satisfactory when disease was regarded as a personal and private matter is inadequate now that health and disease are properly regarded as public and social affairs. I do not see any logical outcome of the development of medical science but this: that the health of the individual shall be regarded as one of the principal interests of the state, and that eugenics, as determining liability for disease or for imperfect development, shall be recognized as one of the principal divisions of state sanitation."

[2] Heredity in Nervous Diseases and Its Social Bearings. *Journal A. M. A.*, Dec. 14, 1912. Vol. LIX, p. 2141-2142.

HYDROTHERAPY IN EUROPEAN HEALTH RESORTS.*

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To attempt to instruct in hydrotherapy those of my colleagues who are making Harrogate the most renowned health and recreation resort in England, would be "bringing owls to Athens." It may be of interest to you, however, to view with me the aspect of hydrotherapy from an angle quite differing from that with which your immense clinical observation has furnished you, and to offer you the results of observations made during a summer's study of all the most important Spas of Europe.

Let me reiterate what I said at the late Congress in London: England is the birthplace of hydrotherapy, for the first book in a modern language on this subject was published by Sir John Floyer, of Litchfield, whose Psychrolusia attracted the attention of Professor Hoffman, of Heidelberg, in 1697, with the result that the latter journeyed hither to obtain from the original fountain a knowledge of the valuable therapeutic properties of water.

Despite this fact, I was pained to learn that knowledge of this remedy is not imparted to the students of your medical schools, nor is it practised in the hospitals to any extent, and, when so taught, it is not presented in its true light. Consequently, it is now mostly in the hands of empirics, who take the honors and emoluments that would inure to you, without having passed through a prolonged and costly instruction in medicine.

This is exactly what happened in Germany until the medical profession in that country was brought to a realization that the public, weary of persistent drugging, especially in chronic ailments, demanded Nature's remedies: Air, food, light, darkness, exercise, rest, and last—not least, water. Laymen who adopted these as the sole specifics—a practice common to all empirics—grew fat upon the emoluments lost to the physician. Systematic efforts were inaugurated to meet the invasion of these empirics, who sprang up everywhere, prompted by the prospective harvests. A Commission for the revision of medical studies was appointed, with Professor Kussmaul as chairman, and he reported as follows:

"There is no doubt that trust in the prescription is waning among educated people, and that confidence in dietetic remedies and in the remedial value of water is in the ascendant. Water has especially won for itself a steadily growing confidence as a remedy. Hydrotherapy, combined with diet, may undoubtedly bring about or aid in the cure of numberless acute and chronic diseases. Of hydrotherapy the young physician knows nothing when he leaves the university. Unhappily, he sooner or later may encounter discomfiture when an uneducated water doctor steps in and cures the patient after he has failed. Herein lies a great gap in the education of our physicians. A revision of our course of study must be made above all things; distinct chairs and clinics are demanded in which appropriate cases may be treated by hydrotherapeutic procedures. But for Heaven's sake, let this not be taught by the chair of pharmacology."

This brief extract from the report of the Commission furnished clear proof of the incursion of the quack upon the status of the medical profession in Germany, and pointed out the remedy in emphatic terms. The result was remarkable, for in a very short time the principal German universities established clinics for hydrotherapy and other physical remedies, in which the development of physical therapeutics began. But even now the encroachments of the Naturarzt continue active in Germany, simply because hydrotherapy is not yet an obligatory part of the curriculum of its medical schools. Until this is done, the young physician will, as Kussmaul says, "know nothing of hydrotherapy when he leaves the university."

Nor is the subject always taught properly on the continent. I was pained several years ago by hearing a brilliant lecturer in Austria say to a post-graduate class: "Gentlemen, the douche must always be given strong and cold," not one word being said upon the importance of grading it to the individual requirements of the case. Wherever I went during my recent trip I noted the sign "Kaltwasserkur" even in the most renowned bathing establishments. It appears that the douchur is permitted to use his own pleasure or stupid judgment regarding the duration and pressure. You will be surprised to learn that in the great Kaiserbad at Carlsbad, and the splendid bathing establishments of Marienbad, this slip-shop arrangement prevails, there being neither thermometer nor pressure gauge. What would you think, my colleagues, of a doctor who prescribed a digitalis cure, or a strychnin cure, or a quinin cure, leaving the dosage to the druggist? Despite the fact that this would not be nearly so reprehensible, because druggists have some knowledge of medicine, no self-respecting physician would adopt such a course. Why then pursue it with a remedy requiring greater judgment?

The rise of the empirics is due to this disregard of the principles of therapeutics, for the efficiency of which a correct diagnosis and dosage of the remedy are absolutely essential.

Judging from my recent observations, it would be wise for the German and Austrian authorities to appoint another Commission like that of Kussmaul to establish instruction in hydrotherapy and other physical remedies as *obligatory*, with examinations, as in other branches of therapeutics. Only by this course will they rescue the people from the quacks, and give their doctors the rights and privileges which they may claim by reason of their diplomas. It must be said truthfully, though it is not an agreeable task, that this criticism applies also to England and my own country. In England the popularity of the so-called hydros is certainly due to the same cause, namely, lack of familiarity with the scientific basis of hydrotherapy among physicians. The men who have learned at least empirically the uses of water in disease are reaping benefits which should really accrue to every physician if he had been as well instructed in the remedial uses of water as in those of drugs. It is to be earnestly hoped that instruction in therapeutics in your schools may not be limited to instruction in drugs, as would appear to be the case from a recent discussion in the London Congress. I yield to no man in the appreciation of active and reliable medicinal agents like opium, mercury, iodid of potassium, digitalis, quinin, and so forth, for they have stood me in good stead in many a battle with disease and death during the past half century at the bedside. When, however, in an otherwise excellent paper before a section of the London Congress on remedies for sleeplessness by an eminent teacher, only drugs are mentioned, and the only clinical evidence related was by a eminent alienist, who gratefully acknowledged the advice given by a noted authority on therapeutics to use Bromidia, a proprietary combination of drugs, and when on the other hand the statement by a speaker that the wet pack is an efficient and harmless hypnotic, is met with almost derisive criticism, despite the fact that it was sustained by an explanation of its rationale and

*Address by invitation before the Medical Society of Harrogate, England.

clinical data, endurance ceases to be a virtue. It is high time, in the interests of patient and physician alike, to enter an earnest protest against such teaching, repugnant though it be to my professional pride and *esprit de corps*. That the application of water in disease must be taught in the medical schools, and taught correctly, is indisputable. Let me remind you, however, that the average English text-book to-day presents so incorrectly the physiological action and therapeutic effect of water that it were better to avoid reading it.

If we would avoid the damage to our material interests by empirics of high and low degree, Christian Scientists, water cure doctors, and their ilk, it is our imperative duty to ascertain the cause of the defection of our patients to these empirics. It behooves us to study and apply drugs less insistently, and to devote more effort to a better comprehension of the remedial action of water and other physical remedies, and of those psychical agencies which the lay doctor and the empiric manage so successfully. All these may certainly be applied with more skill and judgment, and therefore with better results, by the educated physician, who thus may advance, not only his material interests, but also the more important, humane and lofty interests involved in the amelioration and cure of disease. Why waste the student's time with the study of numerous drugs that he will discard when his hair grows white? Why not enrich his mind with the physiologic and therapeutic action of water, and devote more attention, by precept and example, to diet, exercise, rest and so forth, so that he may go forth fully armed to contend with the cormorants who now browse and fatten upon his domain? It is your duty, my colleagues, to further any movement that would increase the knowledge of hydrotherapy among the rising generation.

So much for the prevention of ignorance on the part of the young physician. You may ask: What about the enormous number of practising physicians who have not been so fortunate as to study the principles and practice of hydrotherapy in college? How are they to become familiar with them? To accomplish this much desired consummation, I have devoted many years to missionary work. The general desire for information on the subject is demonstrated by the fact that I have addressed medical societies by invitation at the following places on one or more occasions: New York, Albany, Buffalo, Philadelphia, Baltimore, Boston, St. Louis, Chicago, San Francisco, Los Angeles, Pasadena, Charleston and Columbia, S. C., Charlotte and Salisbury, N. C., Paterson and Long Branch, N. J., Carlsbad and London. It is, therefore, evident that medical men everywhere realize the necessity of more intimate acquaintance with a therapeutic method that has survived since Hippocrates wrote *"De Aqua et Locis,"* and which, after a desuetude of 23 centuries, is again attracting attention by reason of its absolute harmony with physiology, which modern medicine recognizes as only perverted in disease.*

In acute diseases water is an antifebrile remedy; it does not cure the disease, but enhances the resisting capacity of the organism, so that lethal complications are avoided. In chronic diseases with which you are mostly concerned, certain hydrotherapeutic procedures are of immense value by reason of their influence upon tissue change. In these cases the patient is suffering from a derangement of his physiological household, either by reason of neglect, by too high, too low, or irregular living, or by reason of toxic materials that have gained entrance, and are undermining his health. You who have witnessed restoration in rheumatism, gout, neuralgia, gastric and intestinal ailments and other maladies in this beautiful health resort need not be reminded of the value of water, especially when impregnated with certain minerals, the value of which has been long recognized.

It is my purpose to impress upon you some lessons which I have gathered from my recent studies in other health resorts, namely, that not one of these depends upon its own special climate or quality of water. The chief thing is a most strict discipline of the patient, especially those in sanatoria, where their diet, exercise and habits are regulated with military precision. All resorts have added systematic hydrotherapy to their instalment. For instance, in Vichy I was informed that formerly it was a resort for drinking its valuable waters, but that its patronage has increased enormously since the addition of its magnificent bathing establishment, where pure water as a medium for conveying thermic and mechanican excitations has added greatly to its therapeutic resources. If I may be so bold as to offer any suggestion upon this point, I would urge attention to more precise application of water in disease. With regret I would say, here, that the average continental doctor at health resorts does not prescribe water with the same precision that he applies to other remedial agents. I do not follow the methods I have observed in most of the great resorts. In some of the French resorts, bright doctors who themselves administer the douche to all patients informed me that they are able to estimate the temperature of the water by the hand. When I asked one at Vichy how he remembered the temperature of the water of any one of the 200 patients he claimed to treat in one day, and how, without having written it down, he could change the treatment to adapt it to the case in point, he was unable to reply.

In Marienbad, where the instalments for bathing are on the most extensive scale, I was informed that the prescription usually is "Kaltwasserkur," and that one professor orders it to be followed by a Russian bath. Here two doctors told me they never prescribed hydrotherapy because they refuse to entrust it to the judgment of the bath attendants. A very significant and gratifying incident at this place was the great interest taken by the Chief Inspector of Baths in my criticism of the sign in bronze letters "Kaltwasserkur." When the fact was pointed out that warm water was used quite as much, he asked for advice. I gave him the same that I shall offer you, and I hope that you will follow his example in adopting it.

Despite the fact that your Royal Baths have apparently complete apparatus for hydrotherapy, you need an apparatus for precise dosage of water with regard to its temperature, its duration and its pressure. That this dosage is important in the matter of temperature, is matter of common knowledge, but that the duration and the pressure are just as important is not generally appreciated. For example dip one hand into a bucket of water at 40° F. for a second; remove it, rub it and you will find it reacted with a rosy hue of the skin. Dip the other hand into the same water, and leave it for five minutes, and you will experience pain, and be glad to withdraw it. You will then find the skin of a cyanotic hue, and it will require several minutes' friction to produce reaction. The first is a stimulating application because brief; the second is depreciating because prolonged. If you wash a patient with a sponge dipped in water at 70 degrees, or lower, quickly, and rub him you will note a pleasant reaction, because the application is brief. Give this patient a douche, with a

*In my work on Hydrotherapy the indications for and methods of using water in every disease in which it may be of service are clearly given and illustrated by cases from hospital records.

pressure of 25 lbs. and the same temperature, and you will find a pink streak wherever the stream touched the patient. This illustrates the manner in which definite intermediate durations and pressures may be utilized for a stimulating or sedative effect.

I have devised a douche table which, by a combination of pipes conveying hot and cold water to two pieces of rubber hose, furnishes a douche. A thermometer is attached near the outlet, also a pressure gauge, so that the temperature and the pressure may be readily ascertained, just as the druggist does in weighing drugs. The pressure may be arranged very simply, so that any ordinary attendant can fill a prescription from a physician. This apparatus, which any good plumber may construct, is extremely useful in bathing establishments, because it not only furnishes the important element of precision, but also economizes time and prevents the waste of water. The latter impressed Inspector Hahneke, Bath Inspector of Marienbad, so that he informed me that he would order the interior pipes from the New York manufacturer. For all patients who are anemic or under-nourished, I order neuro-vascular training, which means the application of regularly measured temperatures, pressures and durations by daily decrease of temperature to train the blood vessels and nerves of the skin to reaction, just as the dumbbell is used by gradual increase in weight for the training of the muscles. This could not be done without instruments of precision.

I have not in the last 25 years ordered a dose of iron or any medicinal tonic in my clinics or private practice. In one clinic we average daily 75 patients, who are treated chiefly by this douche apparatus. There have been days on which 175 have been treated. I begin by placing the patient in a hot air bath, confined in a box somewhat smaller than the electric light box, which may be used with the same benefit, until he barely perspires. He is then removed, and given the circular douche or needle bath at 95° F., reduced to 90° during one minute, with 25 pounds pressure. This is followed by a fan douche produced by putting the tip of the forefinger over the nozzle of the hose at 85°, reduced during one minute to 80°, with 20 pounds pressure. Each day or two, according to the reaction, the temperature is lowered one or more degrees, and I have reached 40 sometimes without any great discomfort to the patient. You note how easily one may manage to prescribe this precise treatment according to the therapeutic indication.

I am told it would be of interest to you to learn my method of treating chronic gout and rheumatism, of which you see so many cases here. The hot bath pack is my method of producing elimination of retained excrementitious products. It is described in my book, "The Principles and Practice of Hydrotherapy," published by Balliere, Tyndall & Cox, London and Wm. Wood & Co., of New York. I divide these patients into the under-nourished, over-nourished and intermediate types. For the under-nourished I begin with neuro-vascular training. When they have attained some degree of strength and resisting capacity, I begin with the eliminating hot bath pack once a week. As they improve in the general condition, I add the eliminating baths, so they take them twice, three times or oftener a week. With the well nourished patients I begin earlier with the eliminating bath and give them more frequently. The intermediate types are treated with the same care and precision. I generally add a thorough intestinal irrigation once or twice a week, and the method differs from that usually described by always preceding the irrigation by an enema, or applying it after a natural movement. This is intended to prevent irrigation with a solution of feces, the object being, as you may surmise, to clear the intestinal tract of ferment or indol producing decomposition. I endeavor to plan the treatment of every case upon a rational basis.

In conclusion, let me say that the prosperity of a health resort depends more upon the physicians than upon any other element of climate, waters, and so forth. It is therefore a practice of many eminent balneologists who practice at the health resorts to spend several months at some large clinic, in order to familiarize themselves with the advances in medical and laboratory work. Laboratories are of the greatest importance in health resorts. The busy spa physician is unable to make the necessary analyses, blood examinations, and other diagnostic procedures. In order to enable him to offer the best management to the patient, it is a wise plan to submit these laboratory matters to a competent pathologist. No health resort is complete without one.

I have been specially struck by the cordial relationship existing between the medical profession and the administration of the great Harrogate bath establishment. To maintain this should be the aim of every physician practicing here, because it is only in this way that the most progressive methods can be introduced for the benefit of both physician and patient.

51 West 70th Street.

CARCINOMA OF THE GLANS PENIS.

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Carcinoma of the Glans Penis.—The first case is one of carcinoma of the glans penis requiring complete amputation of the organ. The growth is a cauliflower-like mass, with some infiltration extending beyond and some glandular enlargement in the groin.

Operation.—I first introduce a steel sound in the urethra to act as a guide. The next step consists in transfixing the penis at its base with a heavy pin, and that is done for the purpose of anchoring the tourniquet. The object of the rubber band is to make a bloodless operation. If I simply tied a rubber band around the penis the skin and the band would move, but by using the pin everything is securely fastened. I learned this point from Dr. Jarvis S. Wight many years ago.

After the tourniquet is applied, I divide the skin with a circular sweep of the knife, and dissect it up so that it can be held back by retractors exposing about an inch of the corpora cavernosa, through which I cut down to the urethra and corpus spongiosum.

The urethra can be observed projecting an inch beyond the severed ends of the corpora cavernosa. (See Fig. I.)

I cut off the uretha and make a small incision on the roof and floor, so the uretha will gape when it is sewn to the skin.

Then I release the tourniquet, pick up and tie the spouting vessels. The oozing from the spongy tissue of the corpora cavernosa is controlled by sewing the edges with a running suture.

The edges of the skin are now united, and you see the opening of the urethra at the lower angle of the wound, through which I introduce a suture. Drain-

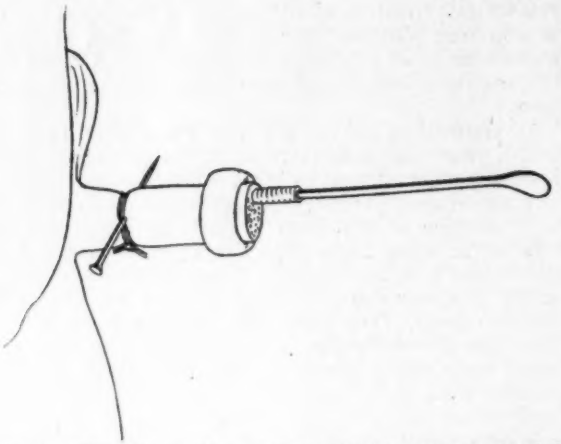


Fig. I. Amputation of penis. Circular skin flap retracted and shaft transfixed with pin to hold tourniquet in place. Urethra with sound as a guide, cut long and projecting beyond divided corpora cavernosa.

age of the bladder is provided for by the introduction of a Pezzer catheter.

The next step in the operation consists in opening up the groin and dissecting out the glands, which I know are enlarged because I felt a chain on one side, and then we will make an incision on the other side and make sure with regard to those glands. There is no use in doing an amputation if we leave infected glands in the groin. (See Fig. II.)

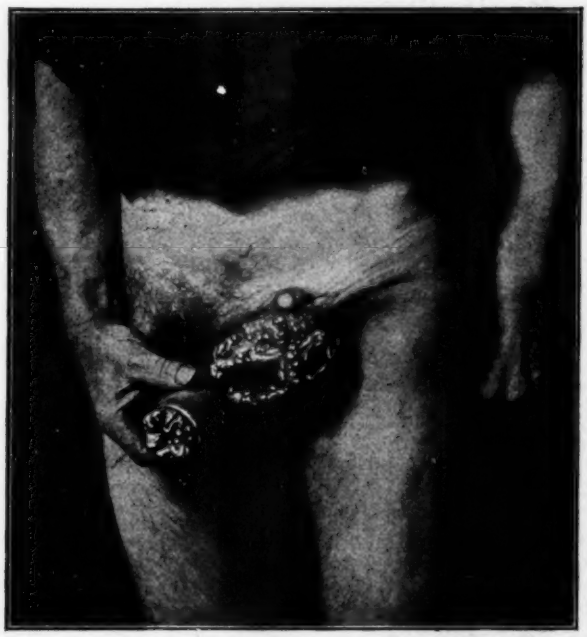


Fig. II. Carcinoma of penis, with involvement of inguinal glands. Author's case. (From Morton's Genito-Urinary Diseases and Syphilis, page 17.)

You may recall the picture in my book on Genito Urinary Diseases (p. 17), showing a neglected case of carcinoma of the penis which had extended to the glands in the groin, which were rapidly breaking down and subsequently caused the death of the patient.

I make a curved incision in the inguinal region and find one large and two small glands, all of which I dissect out and then close the wound. Although I cannot feel any glands on the other side, I make an incision and explore the fat and cellular tissue with my finger. I feel nothing, so will close the wound. We will send the gland which I removed to the pathologist for an examination.*

Having completed the operation, I will discuss the case. The patient is 34 years old, and it is very unusual to find malignant disease in a patient so young. We usually expect it in men from 60 to 75 years of age. I have in mind at present two cases, one in a man of 45, and the other one of 40, but I have never seen a case of malignant disease in one under 40.

The patient first noticed a swelling of the foreskin and hardness of the head of the penis, about July 1, 1913. His physician brought him to me for consultation. At that time the man had a long prepuce, and it was impossible to uncover the glans entirely. That is a thing to be emphasized: cancer of the glans only occurs in men with long prepuces. I have seen only one case in a man who did not have a long prepuce, so the operation of circumcision which is done for hygienic purposes or as a ritual is the best preventive for the development of carcinoma of the penis there is. It is most desirable to circumcise children when they are young; even with adults if the foreskin is long and tight and difficult to retract, it is still desirable to do a circumcision, not only for the purpose of cleanliness, but also with the idea of preventing carcinoma of the glans in later life.

When the patient first came to my office there was a growth on the glans which looked suspicious. We decided to make a section and send it to the pathologist for examination. We retracted the prepuce as much as possible and got the section from the upper part. The pathologist reported no evidence of malignant disease.

If we had been able to take a piece from the base of the tumor we should have secured a typical specimen and the pathologist would have had an opportunity to see the true character of the growth.

It is a practical point to remember that in all tumors growing from mucous membranes, like the bladder or glans penis, to get a typical specimen, a section must be cut close to the base.

I did not see the case subsequently until yesterday. The man had been through the hands of several physicians. His own doctor had circumcised him and removed the growth by curettage. Nevertheless, relapse occurred.

When the patient consulted me yesterday, I noted his present condition, and made a section from the lower part of the growth. The pathologist reported it to be an epithelial carcinoma. Then the question arose as to whether we should do a radical operation, consisting in amputation and removal of the groin glands, or whether we should do a curettage and scraping and use the acid nitrate of mercury. The proper procedure seemed evident at a glance. Temporizing would only end in metastases and the only thing to do would be to amputate the penis, and extipate the inguinal glands. and I so imformed the patient.

The particular points in this case are: First, the age of the patient; second, the usual fact that it has occurred under the long foreskin, as all these typical cases do; third, the fact that the original examination of the section made from the tissues did not reveal the true nature of the growth because the section was not taken from the base, and fourth, the rapidity with which the growths grew after their first appearance.

*Prof. Murray later reported that the lymphatic gland is carcinomatous.

The prognosis of such a case is good, provided we see it before the cancer has extended to the glands in the groin.

If it has gone as far as this, even though we entirely remove as much of the glands as is surgically possible, it is quite likely that metastases have already occurred and the patient will die in a few months of cancer of the peritoneum, liver or other abdominal organs.

I have had at least two cases of carcinoma of the penis a year for the last ten years. Some of them I see around town. Most of them come to my office, and they are in good condition with no relapse and no recurrence.

Question by Auditors and Answer by Dr. Morton:

Q.—Does involvement signify whether or not the condition has spread further up?

A.—If we examine that gland under the microscope and find it free from carcinomatous cells we can say it has not spread to the glands and there is no chance of metastases. It must affect the glands before involving the internal organs.

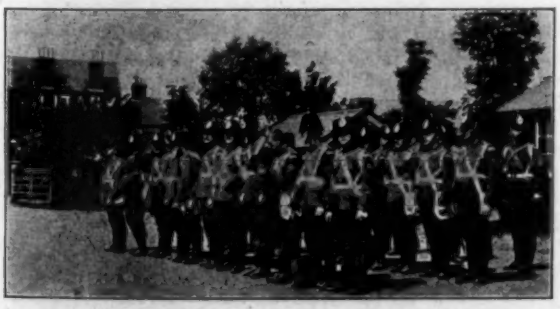
32 Schermerhorn St.

THE ENGLISH ARMY MEDICAL CORPS.

JOHN F. PARKER,
New York.

Many medical men, as well as laymen, will be surprised to know that since the institution of the order of the Victoria Cross, the simple Maltese cross cast out of the cannon captured at Sebastapol and marked only with the two words "For Valor," the Medical Corps of the British Army can claim for it more recipients than any other branch of that country's fighting forces. This means that the officers and men of that section of the British Army that is trained to save life have risked their lives even more valiantly on the fighting line than those whose work it is to deal out destruction. That much coveted piece of bronze worn in the place of honor on the left breast of the soldier is not only a manifest tribute paid by the English nation to her own "silent soldiers" but to the whole medical world.

Never since the beginning of warfare has the English Medical Corps been in a better condition to cope with its difficult problem of handling the injured on the field and her base hospitals at home than in the present international conflict. Of the three to four thousand men trained in this branch of the service more than three hundred are surgeons of ability and in most cases of practical experience in war. These figures do not embrace at all the auxiliary assistance which in the case of England's last important combat, that in the Transvaal, was very great. This medical reserve is not entirely a thing brought into existence in a moment of national emergency or in a moment of sudden outburst



R. A. M. C. in Service Equipment

Stretcher Bearers, The "Queen's" Regiment

of patriotic feeling, but is a carefully trained body of men and officers, recruited chiefly among the students and professors of the leading medical schools and has existed for many years. Their organization has been officially recognized and encouraged by the government. As for the civilian co-operation in such emergencies, not only England but the world in general has still fresh in its memory the services rendered by surgeons of the standing of Sir William MacCormac and Sir Arthur Conan Doyle. The latter was in charge of perhaps the finest volunteer medical organization ever sent to a battlefield. The Langmam Field Hospital has taken its place in history not only on account of its talented leader, who was able to write in the spare moments he seized from his arduous labors one of the best and most popular histories of the Boer War, but for the actual work it accomplished.

The medical service of modern armies seems to be still somewhat of a mystery to the majority of men, including unfortunately many who are engaged in the art of healing. In this country strenuous efforts have been made by a small but enthusiastic group of surgeons to create an efficient Medical Reserve for the United States Army. It has not received the full recognition such an indispensable branch of modern warfare deserves. Even in the English Army where so much attention has been paid to the medical service there is no doubt a totally inadequate number of men trying to repair the damage done to human flesh and bone, on the plains of Belgium and Northern France, by all the modern inventions of destructive machines. It is a well-known fact that in many past engagements of the army in question every man in the bearer companies has had enough to do for ten men. Conan Doyle's eulogy of the manner in which the surgeons and their assistants handled the wounded after the terrible havoc wrought in the battle of Magersfontein stands out as one of the most interesting features in his "Great Boer War" and is a recognition of the fidelity and untiring energy of those who work under the Red Cross.

Perhaps one of the reasons for the somewhat general ignorance of the medical service is due to the fact that until within comparatively a few generations back such a thing hardly existed. For centuries there has existed a form of the regimental surgeon and his assistants, which still exists outside the Medical Corps properly speaking. Some of these men have left a name in history. A handsome mural painting on the walls of the University of Paris commemorates the work of one of the earliest known military surgeons, a Frenchman, Ambroise Paré, at the siege of Metz in the 17th century. The coming of Miss Florence Nightingale and

Water Cart and Ambulance of Grenadier Guards.

her band of helpers to the overcrowded hospitals of Scutari in the Crimean War first brought the attention of the civilized world to the appalling lack of proper attention to the disabled in war and with it may be truthfully said came into existence in England a properly organized medical service to be afterwards known as the Royal Army Medical Corps.

It has been stated how each regimental unit has its medical officer. This means that every battalion of infantry, regiment of cavalry, battery of artillery, etc. has its surgeon who in addition to other duties is responsible for the sanitation of his particular camp. In the present European crisis a specially trained body of men has already been sent to the continent to aid in this matter, to test water and supervise as much as possible the food dealt out to the army. Under the surgeon are non-commissioned officers and privates properly furnished with the necessary medical and surgical equipments. Each battalion has the right to eight stretchers, each stretcher in the charge of four men, two of whom are bearers and two assistants who look after the arms and accoutrements, carry the surgical haversack and water bottle and make themselves generally useful. The wounded man's arms are carefully kept and accompany him throughout every stage of his journey rearward to the dressing station on the theory that he may recover and take his place again in the ranks. One of our photographs shows one of these stretcher companies at the manoeuvers on the Aldershot plains. They belong to the Third Royal West Surrey Regiment, one of the most efficient and best organized territorial regiments in the British service. The members of the bearer company are picked for their courage and general intelligence. They are trained to lift and carry the stretcher in such a manner as to minimize to the greatest possible extent the jolting incidental to steep ascensions and climbing over obstacles. On starting out with a loaded stretcher the front and rear man break step and take a short step with bent knees, the pace ranging approximately 18 in. as compared to the regulation stride of 30 in. Thus a dip of several inches less is saved. The stretcher is carried absolutely level and in such a manner that the wounded man's feet face foreward except when going uphill. Naturally the bearers are never allowed to carry the stretcher on their shoulder for a bullet in either one of them would probably mean a serious fall for the wounded man. Every soldier in the English army carries in a little pocket that is sewed up in his tunic a packet of field dressings with directions as to their use. This packet is enclosed in waterproof covers and contains a compressed dressing, a small piece of gauze, a gauze bandage 4½ yards long and a thin waterproof covering 12 inches by 6 inches. The injured man is thus capable in some cases of looking after himself somewhat until picked up by the regimental stretchers, a bearer company of the Medical Corps, sixteen of which keep up with every brigade of five battalions or by members of the Red Cross Society and other volunteer helpers.

Typical R. A. M. C. Ambulance and Water Cart.

Incidentally, here is where relentless attention and industry must be shown by the officers and men of the bearer companies in keeping in touch with the changing fortunes of a battle, their labors lasting incessantly sometimes day and night. Reports from the other side seem to indicate that on both sides the wounded are continually falling into the hands of the opposing armies. First aid is rendered by these companies, hemorrhages arrested and antiseptic dressings applied but there is no washing and exploration of wounds. The regimental surgeons rarely can perform operations at this point. The wounded are carried back from the firing line to the collecting station where ambulances, in the proportion of ten to one brigade, are in waiting. This station, if possible, is located out of range of fire, close to a road and near water. An accompanying photograph shows an ordinary field ambulance and water cart of the Army Medical Corps which can follow the army almost anywhere except in very mountainous countries or in the case of rapidly moving troops, when panniers slung on both sides of mules are used, provided the wounded can sit up. The modern motor ambulance, with all of its advantages, is unfortunately restricted in its power in that it is confined to roads.

R. A. M. C. Detachment En Route to France.

A short distance back of the collecting station is the dressing station, where operations can be performed. The rank and file are taught how to make fires, boil water, prepare beef tea, food and administer stimulants to counteract the effect of shock and to carefully lay out the medicines and surgical instruments. The operation having been performed the officer attaches to the clothes of each man a specification tally, stating, if possible, his regiment, rank and name with the nature of the wound. the treatment and the precautions to be observed in transport, and sends him back by a second line of ambulances to the field hospital. From here the severely wounded are sent back gradually to the base hospital far in the rear of the army. The field hospital is known as the Second Line of Assistance and contains 100 beds. One is attached to each brigade and must accompany it on its march. For this purpose it is supplied with the necessary wagons, motor trucks and equipment, of which large tents capable of being rolled up and packed in an hour form the principal items. The Third Line of Assistance consists of the hospitals on the lines of communication which are connected as much as possible by hospital trains, many of which have been specially built and fitted out for this purpose.

THE MEDICAL CORPS OF THE OPPOSING EUROPEAN ARMIES.

Germany.

Of all the medical corps of the nations now at war in Europe, that of the German army is undoubtedly the best organized and equipped. The surgeons of the regular arm are highly scientific men, and include splendid operators as well as specialists in every branch of medicine. In addition the reserve includes all of the best men in Germany. Over 12,000 medical men are now serving the German army as surgeons. Some are in the field and others in the various civil and military hospitals. Every regiment in time of peace has its Oberstabsarzt or Chief Surgeon and each battalion has a Battailonsarzt and four Assistenzärzte. In war time this force is quadrupled. Besides the non-commissioned officers and privates of the medical corps, there are many third year medical students in the corps. These men have had considerable clinical experience and after passing a "notexamen" or emergency examination, are taken into the corps for ambulance service. There are also many Krankenträger, whose business it is to transport the wounded from the battlefield to the nearest field hospital, after they have received first aid on the field at the hands of medical officers whose places are on the firing line. The first aid packet carried by every German soldier includes a sterile compress, bandage and safety pins. German soldiers are taught first aid and they have been able to do effective work in this campaign. The newspapers report that the wounded Germans who have been seen by American physicians, have been most skilfully bandaged.

(Courtesy of the N. Y. Evening Post)

Motor Car of the German Army Hospital Corps.

German medicine, as the world knows, spells efficiency. German military surgery is quite abreast of the other branches of medicine and there is a professorship of military surgery in every German university. No student can receive his diploma until he has passed an examination in this important branch.

For a hundred years there has been in Berlin an institution, now called the Kaiser Wilhelm Institute for military surgery, popularly known as the "Pepinire," corresponding to our Army Medical School in Washington. It has an attendance of about 600 students and from this institution the army recruits most of its regular surgeons. Some physicians in serving their term of compulsory army service spend six months as privates in the line and the rest of the time as second lieutenants in the medical corps and a few of these later on pass the examination and enter the regular service with the title of Unterarzt.

Practically all the great surgeons of Germany, like Bier, Lexer, Friedrich, Garre, Payr, and Küttner are serving with the colors and they have with them their entire staffs. Lieut. Gen. Prof. Dr. von Schejering is in supreme command of the German Army Medical Corps.

The thousands of American medical men who have visited the German clinics will have no difficulty in imagining what fine surgical work is being carried out in the German army when such masters of the art are in the harness.

Many German surgeons saw active service in the Balkan war, as seven Red Cross expeditions were sent to Turkey alone from Germany.

The sanitary soldiers of Germany are highly trained in finding and caring for wounded on the field. They are especially adept in distinguishing the severity of the wounds and they possess every known means of transportation. They employ dogs to seek out the wounded lying in out of the way places and at night searchlights aid the sanitary corps in its humane work.

When the medical history of the war is written, the accomplishments of the German medical corps will undoubtedly demonstrate that in point of efficiency it was unsurpassed.

Austria.

The makeup of the Austrian Army Medical Corps is largely patterned after that of Germany, especially in the assignment of regimental medical officers. Its sanitary soldiers are also similar, but it is believed they are not as capable as their German cousins.

The Corps is under the command of Gen. von Eiselberg of Vienna, who was compelled to leave the Clinical Congress of Surgeons before its adjournment on account of the outbreak of hostilities between Austro-Hungary and Servia.

In the reserve is found the best medical men in the empire. No figures are given out regarding the number of medical officers.

Belgium.

The Belgian army has four divisions and its medical service is under the command of a director of medical services. In the field the service comprises the regimental medical service, ambulance service, field hospitals, and Red Cross.

Each infantry regiment has a senior medical officer and each battalion two officers. In addition are the stretcher bearers in command of a sergeant. Practically the same personnel is given cavalry and field artillery regiments.

There are three kinds of field ambulances, the headquarters, divisional and cavalry field ambulances.

They perform the work incident upon their own outfits.

There are two field hospitals to each division and besides there are the surgeons on the firing line, the regi-

mental aid-posts and dressing stations. Stretcher bearers play an important part in carrying out the work of these units.

A field ambulance of an infantry division has five officers, 224 men and 65 horses. A cavalry division field hospital has five officers, 34 men and 32 horses. A field hospital carries six officers, 38 men and 24 horses.

The officers in the regular service are 1 major general, 6 colonels, 11 lieutenant colonels, 15 majors, 64 captains, 42 first lieutenants and 36 second lieutenants. The pharmacists have 1 lieutenant colonel, 4 majors, 23 captains, 7 first lieutenants and 19 second lieutenants. These numbers are largely augmented now with reserve surgeons and pharmacists.

There are in Belgium 16 military hospitals. The largest are Antwerp, 525 beds; Beverloo, 350; Brussels, 325; Liege and Ghent, 300; Louvain, 250; Malines, 200. Namur has 162, Mons, Tournai and Bruges, 150, and the following 100: Termonde, Ostend, Ypres, Arlon and Vilvorde.

These institutions have been overcrowded during this war, but some excellent work has been done by this well trained organization.

France.

In the French Republic considerable secrecy surrounds its army medical department and figures are not readily obtainable. The surgeon general has the rank of major general and the regular service contains a large and most capable body. A noticeable feature is the number of comparatively young men in the higher grades, many surgeons attaining the rank of major in their early thirties.

The organization of the Medical Corps is similar to that of other European armies. Each regiment has from four to six surgeons and field hospitals from four to seven surgeons, with the usual complement of privates.

The French depend to a considerable measure on their reserve surgeons and practically all able bodied medical men are registered. When mobilization comes physicians report first to the commandant of the place indicated on a card every physician carries, then to the chief medical officer for their assignment. At the place of mobilization the physician draws his indemnity of enlistment amounting to from 700 to 1,500 francs according to rank. The pay for an aide-major of the second class (corresponding somewhat to our rank of captain on the medical staff) is 6.70 francs a day. Half of this can be assigned to a wife, parent or child, a quarter to another person. The leading surgeons in the French hospitals are now at the front and only the older men, who are unable to stand the hardships of a campaign, are on hospital duty. The Parisian hospitals are being utilized as base hospitals for the army and the older surgeons are carrying out their military duties there.

Russia.

Very little is known of the Russian Medical Corps. It was not highly regarded during the Russo-Japanese war although it suffered in comparison with the unusually well qualified medical organization of the Japanese army. While good surgeons, the Russian officers showed a meagre knowledge of military hygiene and of preventive medicine.

It is an acknowledged fact that the lessons of that war were well learned by the authorities at Petrograd and that medical officers have been undergoing a systematic course of study with a view of perfecting themselves in every branch of military surgery. It is believed they are vastly more efficient to-day than ten years ago, but as yet they are an unknown factor.

EDITORIAL SIDELIGHTS ON THE EUROPEAN SITUATION.

II.

It may seem a trifle incongrous to calmly write on ordinary medical matters in Europe when the entire world is so stirred by the European war. We feel, however, that people are so surfeited by such an amount of martial news that it may be restful to consider some phases of European medicine in vogue before the outbreak of hostilities. We had hoped to carefully investigate the Spas of France and Germany, but as fate gave us the opportunity of witnessing the mobilization of four great armies we were able to make only cursory examinations and we must confine our writings in this connection to limited confines.

France boasts three bathing resorts of world-wide reputation; Vichy, Aix-les-Bains and Evian-les-Bains on Lake Geneva. The first is too well known to need description and we will consider Aix, a place made especially well known to Americans by the great interest displayed in it by the late J. Pierpont Morgan.

Aix-les-Bains is eight hours south of Paris and has been famous for its baths since the days of the Romans. There are still to be seen the Roman baths, a temple to Diana and the Arch of Campanus. The city is picturesquely situated between two ranges of the Savoie Alps. Directly behind it loom the mountains. On Mt. Revard, reached by a cogwheel road, is an observatory 2,000 feet above sea-level, from which on a clear day, we are told Chamonix and Mt. Blanc can be seen. To the south the mountains were covered with their eternal mantle of snow, and in July resembled our Rockies in January. A crowning feature of Aix-les-Bains is its beautiful lake, Lac du Bourget, which adds the final touch to a charming scene.

The city has about 40,000 inhabitants and is a typical French town, with its two casinos, theatres, fine hotels, shaded, tarred streets which know not dust, fairy like gardens, in which the fragrant cyclamen is so noticable, and parks, walks and drives.

Aix has five hospitals. One, the Leon Blanc, named after the chief physician at the baths, was built and equipped by the late Mr. Morgan, who annually took the cure at Aix under Dr. Blanc. He also contributed largely to the erection of the Municipal Hospital.

The center of interest of Aix-les-Bains is the baths and that means the bathing establishment, L'Etablissement Thermal, a palatial looking building resting on the lowest buttresses of Mount Revard. Two hot springs give the place its cause for fame. The sulphur spring opens in the establishment and the other, an alum spring, is 100 yards away. The two seem to have a common origin, we were informed by Dr. A. Goddard, one of the leading physicians of the Establishment and to whom we are indebted for many courtesies, including much of the data given herewith. The water is the most radioactive of France and the two springs produce 1,000,000 gallons every 24 hours. In addition there opens in the Establishment a cold spring of 500,000 gallon capacity.

The Establishment has a staff of 30 physicians and 200 masseurs and masseuses. The foundation stone was laid in 1776 by King Amedee of Savoie and the structure consists of two stories and a basement. It has 46 douche (bath) rooms, 7 local douche rooms, 16 vapor bath rooms, three hydrotherapeutic rooms with plunge, 6 swimming pools, 37 baths and numerous other rooms for treatment. Every hydrotherapeutic method known to science is employed there.

For internal treatment, the water from three other springs is utilized, as by composition they are especially

indicated for cases handled in the Establishment, which are: Chronic articular and atonic gout; rheumatic gout; sciatica and lumbago; chronic rheumatism, sequelæ of acute and subacute articular rheumatism; sequelæ of infective and pseudo-rheumatic (gonorrhœal) arthritis, including certain forms of tuberculous rheumatism; joint affections of traumatic origin; the sequelæ of acute arthritis; hydarthrosis with stiffness or commencing ankylosis; periarthritis; arthrosynovitis and tendinous synovitis consequent upon dislocations, fractures and operations; neuralgia of diathetic origin or a *frigore:* sciatica, cervicobrachial neuritis; professional cramps, peripheral neuritis of alcoholic orgin and otherwise; intensive treatment of syphilis.

Among the secondary indications taken are polyarthritis deformans in its early stages; sequelæ of hemiplegia, spinal paralysis; locomotor ataxia at a stage where specific treatment is indicated, and sequelæ of phlebitis with hard œdema and functional impotence of limb owing to stiffness of joint and muscles. Acute inflammatory joint conditions and cardiorenal conditions are not accepted.

The question is asked: How is spa treatment carried out? At Aix the thermal treatment is usually taken in the forenoon. The patient is taken from his bed by two porters who convey him in a closed sedan chair to the Establishment. There he receives the hydro-mineral treatment prescribed by his medical adviser: douche massage, sweating, vapor baths, various douches and baths.

The *Aix-les-Bains douche,* or *douche-massage* is administered by masseurs or masseuses. The whole body is massaged, kneaded and rubbed, the patient being meanwhile deluged with a torrent of hot mineral water. This under-water masage usually lasts from eight to ten minutes after which the patient is placed in one corner of the bathroom and is given a direct douche from the hose, the pressure and temperature of which are regulated in accordance by the physician. The patient is then wiped dry, after which he dresses and goes for a brisk walk or rests for an hour, or is wrapped in a flannel peignoir and blankets and taken back to bed where the sweating, initiated in the bath, is allowed to continue for a variable period according to circumstances.

The vapor baths are given in the "bouillons" which are small rooms communicating with those in which the douche-massage is administered. A shower of hot mineral water falls continuously and as it strikes the floor from a height it produces a sort of hot mist with which the room is filled, at a temperature of about 110° F. Patients who are required to perspire remain there for from 4 to 20 minutes, either before or after the douche-massage.

In the Berthollet department the vapor baths are either local or general. The effect is produced by a current of hot moist air obtained by allowing the hot mineral water to fall from a height on to a stone basin whence the water escapes but the hot moist air passes into a large box when intended for general sudation or into a special drum if for local application. For general sudation the patient is seated in a box which is closed except for an aperture for the head to pass through, the whole body being thus plunged in a hot moist atmosphere. For local application the limb is placed in a specially devised apparatus which allows the hot air to play only on the desired part. The part is often massaged after the vapor bath. This same current of hot sulphurous vapor is employed for inhalation. The baths, properly so called, are given either with pure hot mineral water that has been allowed to cool, the so-called "bains refrigérés" or with the hot mineral water cooled by the addition of cold water. The "submarine" and vaginal douches are always administered at the natural temperature of the mineral water, the patient lying in a bath at an average temperature of 35° C. (95°F.).

In addition to the Establishment there is the Marlioz Establishment, which is devoted to the treatment of chronic diseases of the respiratory organs, such as: simple chronic rhinitis, atrophic rhinitis, naso-pharyngeal catarrh, granular pharyngitis, chronic dry pharyngitis, chronic tracheo-bronchitis and catarrh of the larger bronchi, as well as acute blepharitis, chronic conjunctivitis, etc.

Another institution of world reputation in Aix-les-Bains is the Zander Institute, a physio therapeutic institution, under the direction of Dr. Guyenot, who is well known to American physicians, on account of visits to our medical centers. He is especially interested in electrotherapeutics and in skiagraphy. The institute is completely equipped for mechanotherapy. It has in addition rooms for medicated and carbogaseous baths, Fisher & Kiefer system (Nauheim baths); skiagraphy, radioscopy and radiotherapy; for radiant heat and light baths (Dowsing, both local and general), blue light for electrodiagnosis, for electrotherapeutic applications, as faradic, galvanic, undulatory, sinusoidal, static electricity, high frequency (Arsonvalisation), discharge of condensers, Leduc currents, Morton currents, iosonisation, etc., and for vibratory massage. There is a special department for mineral water sprays with patent appliances yielding an integral spray of the mineral water at any temparture and pressure without the intervention of steam and a department for radium emanations, allowing its use in baths so that patients can drink or inhale water laden with radium emanations indefinite amount.

The German Spas have world-wide reputations. On our itinerary were Baden-Baden, Bad-Nauheim, Wiesbaden, Marienbad and Homburg. The first named, beautifully situated in the Black Forest, is too well known to necessitate a description in limited space. Bad-Nauheim is 25 miles from Frankfort on a slope of Johannisberg in the Taunus mountains. This beautiful resort is best known for the treatment of cardiac conditions. The waters owe their efficacy to the graduated temperature employed, the carbonic acid gas, salts of calcium and magnesium, and to their radio-activity. The baths are given in increasing strength throughout the series, gas and mineral salts being added to the successive sets which comprise it.

The most ancient and possibly the best known of the German Spas is Wiesbaden, the history of which goes back to the early days of the Christian era. It is now a beautifully laid out city of 120,000 people, with wide, shaded streets, spacious houses, fine public buildings and a great kurhaus which is situated in a charming park, the Kurplatz. The Kurhaus is really a great casino. Coffee is served on the veranda in the afternoon and crowds gather to sip fragrant *café naturel* and listen to the music of an excellent orchestra. At the leading thermal resort is a *Koch-brunnen,* or hot spring. The water resembles weak chicken broth in taste and looks and contains considerable iron and some sulphur. Up to 40 years ago Wiesbaden was famous for its gambling, but now it is a resort and cure alone and as such it attracts about a quarter of a million people annually.

Another fashionable and largely patronized Spa is Homburg, also in the Taunus Mountains. It has eight salt springs which are particularly efficacious in the

treatment of diseases of the gastro intestinal tract. Gout and rheumatism are said to succumb after bathing sufficiently in the waters.

Homburg, though smaller than Wiesbaden, is delightfully situated and its parks, gardens and drives make it a much sought after resort.

What the result of the war will be on the bathing resorts depends largely on the outcome of hostilities. Certain it is, however, that many Americans who annually visit French, German and Austrian Spas will not do so next summer and Saratoga Springs, N. Y., will benefit in consequence. These famous springs, now owned by the State of New York, offer full opportunity for baths and courses of treatment for all the diseases which are treated at the European resorts. It was to insure the maintenance of the springs of Saratoga and make them available to the greatest number of people that the State took over the property.

Dr. A. W. Ferris, the director of the Springs says: "At Saratoga Springs facilities exist comparable with those at Nauheim. It occupies a central position on a plateau about 25 miles square, averaging 400 ft above sea-level in the village and its neighborhood. The soil is sandy loam, clay, sand or glacial drift, and is in general very porous. There is a large proportion of sunny days and the sky has the blue of the open country. The air is unusually fresh, dry and tonic. The Saraghtoghie (Nauheim) Baths draw water from Hathorn No. 1 spring. The specific gravity of the water runs from 1.010 to 1.020, with a total of 8,414.73 milligrams per liter of solids in solution, of which 2288.92 milligrams represent the calcium salts, and 1335.59 milligrams represent the magnesium salts, while the various chlorides total 4217.78 milligrams per liter.

"The CO_2 content naturally varies from 1.25 volumes to 1.35 volumes in the water as drawn in the tub at 74° F. Thus the water is superior to that at Homburg and equal to the water at Kissingen or even Brückenau, or at Nauheim itself. No more gas can be held in solution in the water when released in the bath tub, than Hathorn No. 1 mineral water contains naturally. The water therefore is used without any addition of artificial gas, for any of the series of CO_2 baths.

"The magnesium and calcium salts and the chlorides, all in solution, cause the requisite skin excitation and irritation, initiating the desired flow of blood to the surface. To the later series of the baths, alkali and common salt are added, as at Bad-Nauheim, when the mother-lye, or concentrated solids are dissolved in the water from the No. VII, No. XII, or No. XIV Sprudel, the bathing waters of the famous Spa of Hesse-Darmstadt.

"With careful diet, exercise and rest, as good results may be obtained at Saratoga Springs as at any locality in the world, where CO_2 baths are administered."

The medical profession is wisely interesting itself in hydrotherapy, a method of treatment all too little recognized by many. Now that war has put the European Spas out of our reach for the time being, it is devoutly to be hoped that the profession will turn its attention to Saratoga and the other American springs and enable patients to profit thereby. H. S. B.

Auto-erythism.

In the sense employed by Havelock Ellis this term arouses some curiosity as to the nature of sexual life. "Male and female created He them," says Scripture. Each particular sex force must arouse discharges of nervous impulses. Are these impulses of a negative and positive electrical character? And in auto-erythism is there a short circuit established?

BACILLARY CONSUMPTION.

Sept. 8, 1914.

To the Editor of the MEDICAL TIMES:

I appreciate very much your sympathetic editorial in your September issue on "The Sane Management of Tuberculosis" which is based on my recent articles on the control and treatment of pulmonary consumption, as published in the *New York Medical Journal* of July 4th and 11th, last.

I can, however, hardly agree with your statement that "exposure need not be feared if those exposed are healthy and cleanly. Probably it is actually contagious when those exposed are debilitated by bad hygiene," and that I have not "invalidated the causative relation of the bacillus of Koch to tuberculosis."

These quotations would indicate that the tubercle bacillus is only capable of causing consumption after the human constitution has become impaired by other causes, which enable the former to become operative. This would reduce the bacillus to a secondary agency in the causation of this disease and also runs contrary to practical experience, for it would have to be demonstrated that the many hundreds and probably thousands who are known to have been directly exposed to this disease, in various capacities, before the present era of disinfection and prevention came into vogue, and who did not take the disease, were in first-class or at least in average health. Additionally it is a common experience that in general hospitals in which consumptives are or have been treated alongside non-consumptive patients, whose vital resistance was undoubtedly impaired and below par, there has not been any evidence of infection or contagion.

Moreover I am not prepared to admit that the bacillus is to be reduced to the position of a secondary cause, when it is clearly shown by experimental findings to be capable of calling forth this disease when inoculated or injected into lower animals, and must therefore be regarded as a primary cause in its legitimate sphere. I am far from undervaluing the great importance of the discovery of the tubercle bacillus, or the part which it plays in the mechanism of tuberculosis. It clinches with scientific exactness the suspicion long held before Villemin, that this disease is in some way communicable.

Yet while all this has been proven by experimental investigation it does not in the least assist us in unravelling the cause or causes, or even the propagation of consumption as we meet it in every walk of human life. All that it has done is to show that this disease may be artificially transplanted by inoculation or injection into lower animals after it has been called into existence by other causes. The grievous error which has been made by this method in attempting to clear up this problem, lies in the fact that there has been a neglect to discriminate between the origin and the transplantation of consumption—a neglect which lies at the bottom of all the entanglements on the practical side of this question at the present time. The natural and the artificial are treated as if they were one and the same thing, although there is as much difference between the original genesis of any form of life, whether diseased or normal, and the artificial transplantation of the same, as there is between sunlight and moonlight.

The truth of this is well exemplified in the various forms of grafting. Particles of skin are taken from one individual and planted on the denuded body-surface of another, and from these nuclei new skin grows over the affected area, yet no one would undertake to say that such artificial transplanation or inoculation

gives us any idea as to the manner in which the transplanted skin is originally produced or developed. Or a sprout or a shoot of a plant may be engrafted on quite a different species of vegetable stock, and it will not only grow and develop its natural foliage, buds, flowers, and fruit, but in many instances it will impress its influence so deeply on the whole stock on which it is engrafted that it will change the entire nature and constitution of the latter. Darwin calls this a process of vegetable inoculation.

The inoculation of the tubercle bacillus into the lower animals, and the consequent production of a process similar to consumption in them, is nothing more than an operation of the same kind. By no stretch of the imagination can it be said that such a procedure gives us any better ideas as to the real and natural causes which originally produce consumption, than vegetable grafting gives us in relation to the manner in which the plants from which the grafts were taken originated and developed. In other words it leaves the causation of consumption as much of a mystery as before.

This is the rock on which the present prevention crusade of consumption is wrecking itself, and the same idea formed the ground-work of the prevention crusade of consumption which was exploited in Italy a century and a half ago, and which after being tried for more than fifty years was discredited and came to an inglorious end. The facts of science and of experience amply corroborate each other.

THOMAS J. MAYS, M. D.
1829 Spruce Street, Philadelphia.

Note.—We believe sincerely in the soundness of Dr. Mays' ideas with respect to the form that the campaign against tuberculosis should take, but we find that our reasons therefor are different from his. We have been puzzled by Dr. Mays' doctrines, aside from his one teaching as to fundamental social reform. On that one point we are in enthusiastic agreement with him. We are both committed to the thorough application of hygiene and sanitation and the abolition of poverty.

Our own stand is that good health is the great protective and defensive factor, that upon it depend both prevention and immunity. We believe that tuberculosis is an infectious disease and that the tubercle bacillus is the cause of the disease, clinical symptoms supervening when, owing to a lessening of resisting power, this organism, by which everybody is invaded, inaugurates active infection.

This does not seem to be the reasoning of Mays, for, if we read him aright, good health does not surely protect us or prevent the progress of the disease after infection. Bad health, he would seem to say, apparently protects or is negligible.

The doctor says in his letter that he regards the bacillus as a primary cause of tuberculosis, and yet in the *New York Medical Journal* of July 4 he said: "That consumption is * * * infectious is refuted, not only by the history and clinical experience of this disease, but by the cold, solid facts of figures." Further, in the *New York Medical Journal* of July 11, he said: " * * * * we are following a theory of the cause of this disease which, at the very best, rests, on a vague and questionable foundation; and no treatment can be expected to be successful in any disease unless it is underlaid by a well defined pathology." Again he says, in the same article: " * * * * it is hardly necessary to cite a long roll of facts to prove that the * * * infection theory of consumption is contradicted by the experience of all consumption hospitals; by that of health and mountain resorts which lodge and board consumptives; by that of married consumptive people; by that of the inhabitants of towns in which are consumption hospitals; and by that of the many eminent physicians who have made a special lifelong study of this disease." And yet again he writes: "It has already been intimated that practically there is no danger of contracting this disease through * * * infection." We also encounter: " * * * no theory of the pathology of consumption or of any other disease, is true unless it points out the path of cure and prevention. Has the bacillus theory rendered such service to medical science? * * * yet never was an *ignis fatuus* pursued which left more promises broken and greater anticipations unfulfilled than this delusion." Next we meet: "when every possible effort reinforced by unstinted financial assistance was put forth to annihilate this disease on the ground of its * * infectiousness, there has been a general increase in the mortality." Finally, Dr. Mays writes: "The foregoing facts and figures stand directly opposed to the causative relation of the tubercle bacillus to pulmonary consumption. * * In other words, they mean that it is not dependent on * * * infection for its existence."

Another thing which puzzles us is Dr. Mays' apparently conflicting expressions regarding the rôle of good health. In one place in his article of July 11 he alleges that Flint saw almost as good results in cases which received neither medical nor hygienic treatment as Trudeau has obtained at Saranac, and the reader will note what doubt he throws on good resistance in the letter upon which we are commenting, yet in this same article he says that "there is no doubt that the superior skill which the older physicians displayed in managing this disease was largely, if not solely due, to their determined and persistent belief in the building up of the wasted and impaired constitution with appropriate remedies." Apparently he cannot accept unequivocally the resistance doctrine.

Time is wasted in academic discussion, however, and so long as there is agreement as to practical steps it doesn't matter much by what avenues final conclusions have been reached. It sufficies to say that too much emphasis has been placed upon the infective agent while the most important issue has been dodged by reactionaries. Good hygiene and sanitation mean two things, the conservation and enhancement of health, and the abolition of the infective agent itself. What is the good of dealing almost entirely with the consumptive himself and his sputum while the causes that foster the growth of pathogenic germs and break down resistance are not radically dealt with? Unless we remedy certain well known and indefensible conditions what is to prevent tuberculosis going on forever just as it is going now? The truth seems to be that the interests of those who might act effectively are in some way bound up with the interests of those who profit by our social crimes. They do not act because they do not want to act. Subconsciously they are inhibited and cannot see beyond amelioration, the great sin of the day.

Devoutly though we wish for the consummation of our hope, will it ever be witnessed?—Ed.

Hyperchlorhydia.

It has been shown that nephrectomy is followed by a change in the amount of gastric secretion. Does the dyspepsia which accompanies chronic nephritis occur as a result of directly interrelated functional effects?

The Last Word on Benzoate of Soda.

The result of investigations by the German Imperial Board of Health on benzoate of soda set forth in Vol. XLV., *Arbeiten aus dem Kaiserlichen Gesundheitsamte,* page 425, December 19, 1913, ought to set at rest forever the question of the practical harmlessness of sodium benzoate. The investigations were carried out by three prominent members of the staff, Dr. Rost, Dr. Franz and Councillor Weitzel, and deal with the subject of the action of benzoic acid and sodium benzoate on the animal organism.

Dogs and rabbits were employed in the experiments, because they represent two types of animals which differ from men only through the greater preference for an animal diet on the one hand and a vegetable diet on the other. The behavior of man lies between the two and the conclusions drawn from the studies of the metabolism of the two classes of animals would undoubtedly apply to the human animal. In the dog experiments, puppies were frequently employed, and the observations on gradually increasing doses of benzoate were carried out through the growth of the animals. In all cases relatively large doses were given to these dogs, and these were *intentionally* carried to the point where some harmful effect was found. It appears that up to 1 gram, per kilogram of body weight, one-tenth of one per cent. of the weight of the animal, these doses of benzoate had no action whatever, either on the growth, development, appetite or general condition of the dogs. When greatly increased doses were given, of course various symptoms began to appear. Generally speaking it was found, in such cases, that the same results occurred as would have been occasioned by the same quantities of common salt.

If these relations are applied to man it appears that daily amounts of benzoate, running up to 1.6 ounces per day for a man of 100 pounds, would have to be administered through months to show any possible action, and there is no evidence that any result would appear then.

It should be noted here that a man would have to consume one hundred and sixty (160) 8 ounce bottles of ketchup, preserved with one-tenth of one per cent. of benzoate of soda, to inject 1.6 ounces of the benzoate.

The 1 gram per kilogram per day dose was the smallest quantity which seemed to have any action on the animals, and the authors conclude that any amount smaller than this might be given through indefinitely long periods. With most of the dogs larger weights, 1.5 grams per kilogram of weight, for example, had to be given to bring harmful action.

In the case of rabbits the doses of benzoate required to exhibit some harmful action were about 50 per cent. higher than the dogs. Rabbits seem to have a greater capacity for furnishing glycocoll and combining it with benzoic acid than have dogs, and the whole question appears to hang on this. In man the situation is midway between that of the animals, and the excretion of the product formed, hippuric acid, is extremely slight in all cases. The excretion is rapid and even in large amounts without action of any kind on the kidneys. There is no retention in the body as was sometimes asserted, although without warrant, some years ago.

These long studies of the German Imperial Board of Health confirm the findings of other investigators, as to the extreme lack in harmful effects of benzoate administration. It is safe to say that salt, and many other common things, if administered in the same large quantities would be found as harmful, possibly more so. They show in a final and authoritative way that such small quantities as have significance in the preservation of food are so far below the possible toxic quantities as to merit no further attention from that point of view.

Resolutions Worthy of Adoption.

At the third annual meeting of the Alienists and Neurologists of the United States held under the auspices of the Chicago Medical Society, for the purpose of discussing Mental Diseases in their various phases, July 13-17th, the following resolutions were unanimously adopted: that we recommend to the proper state authorities, the absolute control of the sale of alcohol until such time as actual prohibition be enacted; that the sale of all habit inducing drugs be strictly regulated in all states of the Union; that municipal or state control of venereal diseases be established, with proper treatment for indigent patients, to the end that the spread of syphilis and gonorrhea be prevented; that, proper, special hospitals for the care and treatment of alcoholism and drug addictions be established; that municipal, state and national inspection of labor conditions be regularly maintained and child labor abolished; that no known defective dangerous to himself and to others, should be permitted to have unrestricted liberty; that adequate teaching of the principles of heredity and sex life be initiated and fostered in the home with the view to its introduction into the curricula of schools—above the grammar grades, this instruction, to be given to the sexes separately; that the various states pass reasonable and universal marriage laws, that will be reciprocal, in preventing the marriage of the physical and mental unfit; that a Psychopathic Laboratory be connected with the criminal courts, common schools, railroads, transportation companies and public service utilities, responsible for the actual safety of the general public should have their employees regularly examined as to their physical and mental fitness; that, inasmuch as state, county and city public health institutions should have as their superintendents, men of highest qualifications, who may devote their best efforts to their tasks, we recommend that all such positions be subject to civil service examinations; that, in addition to the above, we recommend a nation-wide campaign of education conducted through the public press, university and medical schools, boards of health, state, county and city boards of education, women's clubs and other proper educational mediums, upon the true significance of the development—physical, mental and moral—of the individuals and the race and finally, we recommend that a committee be appointed to promote the enactment of the above resolutions; that Health Departments, (Municipal and State) should be equipped to make laboratory examinations for venereal diseases. All hospitals for the insane should be equipped to make laboratory examinations for venereal diseases. Hospitals and dispensaries for the treatment of venereal diseases, should be provided. Physicians should be compelled by law to report cases of venereal diseases, as is now done in other contagious diseases. Applications for marriage should be required to furnish health certificates. Lectures and bulletins should be offered freely to the public regarding venereal diseases. Newspapers should be requested to use their best influence to educate the people concerning venereal diseases. Sex Hygiene should be taught in the public schools, above grammar grades, to the sexes separately.

Salicylate of mercury 10 per cent. in liquid abolene, injected aseptically into the gluteal muscles weekly, is an excellent adjuvant to salvarsan or neosalvarsan.

The Medical Times

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences

ESTABLISHED IN 1872

EDITED BY

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ARTHUR C. JACOBSON, M.D.,
Associate Editor.

Original articles and clinical communications will be welcomed, if given for exclusive use in this journal.

When authors furnish drawings or photographs, the publishers will have half tones and line cuts made without expense to the writers.

SUBSCRIPTION RATES;
(STRICTLY IN ADVANCE)

UNITED STATES, - - - - - - - - - $1.00 per year
(Including Alaska, Cuba, Mexico, Porto Rico, Hawaiian and Philippine Islands)

CANADA, - - - - - - - - - - - $1.25 per year

FOREIGN COUNTRIES IN POSTAL UNION, - - $1.50 per year

SINGLE COPIES, 15 CENTS

Definite written orders for THE MEDICAL TIMES are required from all subscribers, to whom the journal is thereafter regularly forwarded, until written notice to discontinue is sent to the publisher.

All communications should be addressed to and all checks made payable to the publishers,

MEDICAL TIMES CO.

ROMAINE PIERSON, *President and Treasurer*
H. SHERIDAN BAKETEL, *Secretary*

81 Fulton Street - - - New York

Entered as second-class matter, Post Office at New York, N. Y., Act of Congress of March 3d, 1879.

NEW YORK, OCTOBER, 1914.

The War and Medicine.

Medical men naturally look to a great trying out in the European war of the medical departments of the armies engaged. The management of wounds and diseases incidental to military campaigns and the results thereof will be studied with the greatest interest. We rather look for unprecedented success, in view of the high character of attainment represented in the medical personnel of the armies of Germany, France and England. This, of course, aside from the terrific mortality to be expected from the inevitable butchery of the titanic contest itself. The Russian Red Cross is a splendidly organized force, with vast resources, both financial and institutional. One municipality alone (Moscow) voted it $5,000,000 on August 1, The Austrian and Japanese Red Cross Services are strong.

What will be some of the effects of this war on medicine itself and the medical profession? Our therapeutics will undergo certain necessary modifications which may involve more than temporary effects upon practice, because of the cost of some drugs and the withdrawal of others. An impetus should be felt in the manufacturing line as regards surgical and optical instruments, and the home production of certain drugs like digitalis ought to be increased. Post graduate study in America may be established as a steady habit. One way to develop this trend would be to make it less expensive and more efficient. The times are ripe for this, for we have long been threatening to compete more than successfully with Europe in this field, and would probably have forged ahead even if there had been no European war. The medical press of America finds itself called upon to carry on the torch of knowledge, for the European journals, for obvious reasons aside from the scarcity of paper, are printing very thin editions. During and after the war great medical congresses will find in America the most feasible points for meeting. The terrific economic losses of the war will stay medical progress abroad for years to come. The financial resources of science are in process of dissipation. Research will be greatly hampered both for this reason and because of the loss in battle of the flower of Europe's laboratories, now fighting as reservists and volunteers. Military hygiene will take a forward step, but the progress that goes with peace will be stayed. It is possible that surgery will be improved in certain ways, for, as the *Medical Record* points out, it was upon the battlefield that Ambroise Paré demonstrated the superiority of the ligature to the cautery.

Upon the United States devolve now the great tasks and the great opportunities of medical science and art and we should forge far ahead in the days to come. The ravages of the war will be far offset if we find it possible to lay against them some great achievement. The conquest of cancer would be a greater victory than any that may come to the embattled forces in the cockpit of Europe, so far greater with respect to lives and moral value that the mind is awed by the comparison. Our functions, responsibilities and obligations in the premises are great and sacred.

Drugs and the War.

The drug trade will suffer perhaps more than any other as a result of the European war. Drugs chiefly affected in price so far are quinin, cod liver oil, hyoscyamus, salvarsan, morphin, opium, aconite, essential oils, ergot, phenol, glycerin, digitalis, buchu, physostigmin, camphor, pilocarpin, senna, rhubarb, cantharides, atropin, homatropin, asafetida, aloes, tartaric acid, strychnin, cocain, novocain and the other local anesthetics, formaldehyd, caffein, theobromin, bichloride of mercury and the synthetic drugs. The United States is a small drug producer, hence is bound to suffer because of the interruption of trade caused by the war. The increased demand abroad for chloroform and ether will affect the prices of these drugs also. The war ought certainly to result in a tremendous stimulation to domestic drug production. A country which is so great a user of drugs ought not to depend to the extent it does upon foreign producers. While it is true that we are absolutely dependent upon Europe for certain drugs, this cannot be affirmed of all that we import. And probably for our absolute dependence in the case of some drugs it would be possible to substitute relative independence. As regards cinchona, why should we not transfer our trade directly to South America, instead of dealing with London and Amsterdam? There is enough digitalis growing wild in Oregon and Washington to supply the world.

Hygiene and Social Reform.

Dr. Simon Baruch thinks that the promotion of hygiene is the best means of reducing crime and insanity. This is undoubtedly sound reasoning. The criminal is a sick man upon whom the moral and religious appeal is lost. First comes health. The man who is sound in body and mind, which is a matter of hygiene, cannot be a bad man. Money spent by the community in furthering the public health is the best of investments. It is more than justified economically by the actual returns. If it were possible to get the economic value of hygiene into the minds of everybody we should have but little difficulty in securing the funds needed to carry out health projects. There are many things

known to hygienists which have not as yet been properly applied, because the people have not "gotten wise" to them, and we can move only so fast as public opinion ordains. The beneficent results of preventive medicine, could it be fully applied, would be marvellous. Medicine is held accountable for shortcomings which are really chargeable to unenlightened public opinion. Crime and insanity are pathological reflexes that are capable of large reduction, and when hygiene, in the largest sense, comes into its own, but few opprobria will lie against our much "slammed" profession.

A Uniform Federal Licensing Act.

The active interest aroused in the profession and among contemporary journals by a recent symposium conducted by the MEDICAL TIMES upon the subject of a uniform federal licensing act, moves us to depart for a brief space from the realms of medicine and to venture a slight incursion into the province of our sister profession of law.

We have been advised that no federal licensing act is possible without an amendment to the United States Constitution.

This opinion has been challenged in some quarters, lay, medical and legal.

In support of the opinion which has been expressed to us and which carries much weight with us, we desire to quote certain extracts from decisions of the Supreme Court of the United States, which, as we are informed, are controlling upon the question.

The first proposition that we advance is that the licensing of physicians and the provision of qualifications thereof is a matter within the police power of the separate sovereign States of the Union.

Mr. Justice Field, in the case of Dent v. West Virginia, 129 U. S. 122, said:

"The power of the State to provide for the general welfare of its people authorizes it to prescribe all such regulations as, in its judgment, will secure or tend to secure them against the consequences of ignorance and incapacity as well as of deception and fraud. As one means to this end it has been the practice of different States, from time immemorial, to exact in many pursuits a certain degree of skill and learning upon which the community may confidently rely, their possession being generally ascertained, upon an examination of parties by competent persons, or inferred from a certificate to them in the form of a diploma or license from an institution established for instruction on the subjects, scientific and otherwise, with which such pursuits have to deal. The nature and extent of the qualifications required must depend primarily upon the judgment of the State as to their necessity. If they are appropriate to the calling or profession, and attainable by reasonable study or application, no objection to their validity can be raised because of their stringency or difficulty. It is only when they have no relation to such calling or profession, or are unattainable by such reasonable study and application, that they can operate to deprive one of his right to pursue a lawful vocation.

Few professions require more careful preparation by one who seeks to enter it than that of medicine. It has to deal with all those subtle and mysterious influences upon which health and life depend, and requires not only a knowledge of the properties of vegetable and mineral substances, but of the human body in all its complicated parts, and their relation to each other, as well as their influence upon the mind. The physician must be able to detect readily the presence of disease, and prescribe appropriate remedies for its removal. Everyone may have occasion to consult him, but comparatively few can judge of the qualifications of learning and skill which he possesses. Reliance must be placed upon the assurance given by his license, issued by an authority competent to judge in that respect, that he possesses the requisite qualifications. Due consideration, therefore, for the protection of society may well induce the State to exclude from practice those who have not such a license, or who are found upon examination not to be fully qualified. The same reasons which control in imposing conditions, upon compliance with which the physician is allowed to practice in the first instance, may call for further conditions as new modes of treating disease are discovered, or a more thorough acquaintance is obtained of the remedial properties of vegetable and mineral substances, or a more accurate knowledge as acquired of the human system and of the agencies by which it is affected. It would not be deemed a matter for serious discussion that a knowledge of the new acquisitions of the profession, as it from time to time advances in its attainments for the relief of the sick and suffering, should be required for continuance in its practice, but for the earnestness with which the plaintiff in error insists that, by being compelled to obtain the certificate required, and prevented from continuing in his practice without it, he is deprived of his right and estate in his profession without due process of law. We perceive nothing in the statute which indicates an intention of the legislature to deprive one of any of his rights. No one has a right to practice medicine without having the necessary qualifications of learning and skill; and the statute only requires that whoever assumes, by offering to the community his services as a physician, that he possesses such learning and skill, shall present evidence of it by a certificate or license from a body designated by the State as competent to judge of his qualifications."

Mr. Justice Brewer, in the subsequent case of Hawker v. New York, 170 U. S. 189, citing with approval the Dent case, said:

"It is insisted that within the acknowledged reach of the police power a State may prescribe the qualifications of one engaged in any business so directly affecting the lives and health of the people as the practice of medicine. * * *

"We are of opinion that this argument is the more applicable and must control the answer to this question. No precise limits have been placed upon the police power of a State, and yet it is clear that legislation which simply defines the qualifications of one who attempts to practice for the public health is something confessedly belonging to the domain of that power."

The second proposition which we advance is that the Government of the United States is one of delegated powers alone. Its authority is defined and limited by the Constitution. All powers not granted to it by that instrument are reserved to the States or the people. No rights can be acquired under the Constitution or laws of the United States, except such as the Government of the United States has the authority to grant or secure. We cite in support of this contention the case of United States v. Cruikshank, 92 U. S. 542:

"Experience made the fact known to the people of the United States that they required a national government for national purposes. The separate governments of the separate States, bound together by the articles of confederation alone, were not sufficient for the promotion of the general welfare of the people in respect to foreign nations, or for their complete protection as citizens of the confederated States. For this reason the people of the United States, 'in order to form a more perfect union, establish justice, insure domestic tranquility, provide for the common defence, promote the general welfare, and secure the blessings of liberty' to themselves and their posterity (Const. Preamble), ordained and established the government of the United States, and defined its powers by a constitution, which they adopted as its fundamental law, and made its rule of action.

"The government thus established and defined is to some extent a government of the States in their political capacity. It is also, for certain purposes, a government of the people. Its powers are limited in number, but not in degree. Within the scope of its powers, as enumerated and defined, it is supreme and above the States; but beyond, it has no existence. It was erected for special purposes, and endowed with all the powers necessary for its own preservation and the accomplishment of the ends its people had in view. It can neither grant nor secure to its citizens any right or privilege not expressly or by implication placed under its jurisdiction.

"The people of the United States, resident within any State, are subject to two governments—one State, and the other national—but there need be no conflict between the two. The powers which one possesses the other does not. They are established for different purposes, and have separate jurisdictions. Together they make one whole, and furnish the people of the United States with a complete government, ample for the protection of all their rights at home and abroad. * * *

"The government of the United States is one of delegated powers alone. Its authority is defined and limited by the Constitution. All powers not granted to it by that instrument are reserved to the States or the people. No rights can be acquired under the constitution or laws of the United States except such as the Government of the United States has the authority to grant or secure. All that cannot be so granted or secured are left under the protection of the States."

It has been suggested that if a federal licensing board was constituted that various States would accept the same.

The insuperable objection to this plan, it seems to us, is that the federal license under such an arrangement could not be imposed upon any State against its will.

In view of this legal situation, we are remitted, in a consideration of this question, to the view that the various States should have uniform licensing statutes, providing uniform educational, professional and personal qualifications.

The Very Wide Practice of Medicine.

It is interesting to compare the attitude of lawyers with respect to infringements upon the practice of law with that of physicians in like circumstances. Thus it was recently chronicled in the daily press that a report of a committee of the New York County Lawyers' Association discloses a professional indignation against what the committee calls "a very wide practice of law" by persons who are not lawyers, some of whom "have not even served a clerkship in a law office." Such practice is in violation of the Penal Code and the committee recommends vigorous prosecution of the offenders. (*The World.*)

There is absolutely no doubt as to what will happen to the offenders. The law is clear and action will be swift and unerring.

But when it comes to infringements upon the practice of medicine, we encounter "a very wide practice of medicine" by persons who are not physicians, some of whom "have not even served as bottle-washers in a drug store." And they get away with it.

The trouble is with the act which defines the practice of medicine and with that particular clause in the act which exempts two great religious bodies from its operations. We are the helpless victims of a situation which no one can remedy, for public opinion ordains that the particular clause aforesaid shall remain. In the course of the years a demoralization has flowed from the application of this act which has made it possible for a horde of fakers to follow in the wake of the great religious organizations which, in a sense, practice medicine with public approval. Even though these fakers violate the medical practice law there can be no hearty interest in prosecuting them under its straddling provisions. Even systems which are not religious, like osteopathy, have profited through this well-meaning legislative burlesque, not directly, but because of the moral and mental weakness of the whole community as betokened by the language of an act which accurately expresses that community's desires on the point in question.

The Commercially Exploited Doctor.

More and more is the doctor subjected to commercial exploitation, if he be morally weak. There are the commissions offered by various houses, commissions offered by his own colleagues, and commission of 25 cents per prescription where a certain preparation is written for. There is a company operating in Manhattan which undertakes to furnish doctors' offices in return for the prescribing of certain concoctions. Then there are the companies which sell stock to physicians and operate their own pharmacies, to which patients are referred with prescriptions calling for company products—all seemingly ethical. Anybody with a fair amount of gumption can easily guess what results from such conditions.

Medical Editorial Table

The Dangers of Twilight Anesthesia.

All evidence, clinical as well as experimental, tends to show that twilight sleep produced by chloroform is dangerous, and this will probably be found to apply to other agents used for the same purpose. Many deaths have been observed during the first stage of chloroform anesthesia under the influence of fright or excitement. These emotions enhance markedly the production of the adrenal principle, and the excess of this agent gives rise to cardiac fibrillation followed by death. These effects of epinephrine have been demonstrated by Cannon, Hoskins, Depree and Lévy.—*New York Med. J.*, Aug. 8, 1914.)

Femina Militans.

The British suffragette has been pretty thoroughly discussed by medical jurists and by psychiatrists. Marx holds that the phenomenon of militantism is an inversion of the seemingly natural passivity of woman and is due to a certain immaturity of the brain, which is exhibited in the violent "short cut" toward a desired object. The immature use the harshest measures first. Marx does not consider the militants hysterical. He thinks there should be no wholesale penalties, each militant to be dealt with as an individual. Leppmann would not class the suffragettes indiscriminately as criminals. He would look into the components of imbecility and psychic infantilism. Strassmann classes the suffragette movement as a "crowd psychosis." Mass believes that no sane woman could die by hunger strike. Marx sums up by declaring the movement a pathological development of neofeminism. The question of feminine militancy is now, however, for the time being at least, a thing of the past, overshadowed by the militancy of hordes of the ruder sex. The woman has resumed her rôle of ministering angel and is devoting her energies to relieving as far as she may the suffering caused by the combatants in the larger war.—(*Medical Record,* Aug. 15, 1914.)

Ether-Oil Rectal Anesthesia.

It would seem that the successful production of anesthesia by the use of ether and oil in the rectum is more interesting as proving that it can be done than because it possesses any considerable therapeutic value. The irritating effect of the ether upon the rectal mucous membrane is only in part put aside by the oil. The method should be used, if at all, in a very limited class of cases. In operations upon the jaws, mouth, or respiratory passages intratracheal anesthesia can readily be carried out without resorting to ether and oil. There is greater likelihood of postanesthetic toxemia, because recovery is apt to be prolonged for many hours, even when the colon is irrigated. It cannot be employed where there is any irritation, inflammation, or disease of the lower end of the alimentary canal. The dosage cannot be regulated nicely, and the stage of induction may be so prolonged as to necessitate the additional use of ether by the lungs. During induction cramps, fullness, pressure and anal irritation may occur. Respiratory depression may become marked, the muscles unduly relaxed, and the pupils dilated. Colitis and proctitis may ensue as sequelæ.—(*The Therapeutic Gazette,* Aug. 15, 1914.)

What Does Not Belong to Neurasthenia.

The pseudo-neurasthenias and neurasthenoid conditions must be carefully differentiated from true neuras-

thenia, particularly from the therapeutic viewpoint. These conditions are not infrequent. Many practitioners are in the habit of pigeon-holing under the label of neurasthenia everything functional which is not frankly hysterical. Thus fatigue and exhaustion are etiological factors of neurasthenia but in themselves nothing more. They are not neurasthenia, nor synonymous with it. They are not even a necessary part of the picture of neurasthenia. Nor are overwork and overstrain a necessary preliminary to the development of neurasthenia. The disturbances of organic equilibrium occurring at times at puberty or the menopause, accompanied by vasomotor and general metabolic disorders, are not true neurasthenias, although neurasthenia may be engrafted upon them. These disturbances disappear spontaneously when organic equilibrium has been re-established. We see neurasthenoid conditions in cases of arteriosclerosis, exophthalmic goitre, Addison's disease and general paresis in the early stage, in other words there is physical and mental fatigue. In early tuberculosis, diabetes, chronic infections and intoxications, post-influenzal and post-typhoidal conditions we encounter pseudo-neurasthenic syndromes. A very large number of mental cases are disastrously regarded as neurasthenia, such as cases of dementia precox, hypochondriasis, cerebral and cerebrospinal syphilis, manic-depressive insanity, psychasthenia and hysteria. True neurasthenia may be defined as a condition constituted by a general ensemble of phenomena which result in the non-adaptation of an individual to any continued emotional cause, and the struggle of that individual to bring about such an adaptation. In other words, preoccupation is a *sine qua non* of neurasthenia, and the cause of neurasthenia is always to be found in some emotional factor.—(*Boston Med. and Surg. J.*, August 6, 1914.)

Radium in Cancer.

Radium will gradually take its proper place. It is going through the period of enthusiasm that Roentgen-ray therapy experienced ten years ago. We really know now the extent of its possibilities. It is useful in numerous dermatoses and it is indisputable that it can be used successfully to destroy certain localized malignant growths, that is, growths on the surface whose entire extent can be sufficiently exposed to its energy. Extensive growths involving deep structures and disseminated growths are beyond its control, and there is no reason to believe that they will ever be brought within its control, even if the supply is largely increased.—(*J. A. M. A.*, Aug. 29, 1914.)

Infections of the Urinary Tract in Infancy and Childhood.

Marsh observes that pyelitis and cystitis are much more common in infancy and early childhood than is generally supposed. Therefore when a child is ill of fever, instead of following the usual custom of blaming teething or indigestion, the urine should be carefully examined for pus, especially in females, should therefore not be attributed to dentition or gastrointestinal indigestion until a careful examination of the urine for pus cells and organism has been made. The infection may result to direct infection with feces through the urethra, or from the direct passage of the organism from the bowels to the kidney. In spite of all treatment many cases become chronic.—(*Brit. Jour. Child. Dis.*, No. 9, 1913.)

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

EUGENICS AND MORAL HEALTH.

Reader, have you ever attended a conference of unterrified eugenists? Have you ever looked over such a conclave and wondered, and wondered, and wondered?

Imagine a queer looking jigger getting up and detailing at great length his ancestry, and not leaving wholly to inference the idea that the splendid product of it all is on view? Think of the sublime and unconscious demonstration herein involved of eugenic unfitness!

Of course, such a movement is bound to bring out all the freaks, prigs and snobs of the type mentioned.

After all, how respectable were those old people who look so well in the New England registers and genealogical archives? Their names, their civic offices, their old country origins, all bespeak piety, simplicity, virtue. But why, necessarily, should such stock be considered eugenically good? Jonathan Edwards had a grandmother who possessed beauty, a strong will, great mental and physical vigor, *and a lover*. She was divorced from her husband for adultery and other immoralities, and her sister and her brother were murderers. Edwards' grandfather had six children by a subsequent marriage, none of whom, nor any of their descendants, were above mediocrity. From whom is it likely that Edwards inherited his great powers? Thus what goes by the name of bad stock may be the source and origin of the best of stock, *mutatis mutandis*. At any rate, it is hardly possible to lay down hard and fast rules. Beethoven's father was a drunkard, and Marcus Aurelius fathered a monster of crime.

What is a desirable type? Having decided that (as though something that no two of us would agree on could be decided), how are we going to prevent such a type from rapidly changing, which is notoriously a way that types have of doing?

Goldthwait tells us that a large percentage of human beings are born with inadequate anatomical development, with insufficient resisting powers and with all the signs of early doom hidden within them. Moreover, he says that the requirements of present-day industry, natural tendencies and countless other causes tend to the disarrangement of the human organism and make it impossible for some of the most important organs to work properly. Add to that the fact that hereditary insanity is in the blood strains of about 30 per cent. of our population, and the pessimist finds reason for suspecting almost anybody of unfitness. For "scrub-breeding" has gone on so long in the human race that there cannot be much "pure" stock, if any. How many people know anything about their great-great-grandparents? The place in which eugenics should have been instituted was in the Garden of Eden. And it should have been continued under the auspices, not of a board of eugenics, but of angels.

Not long ago a village in the Middle West was studied by Arnold L. Gesell. It is a typical village. Gesell found out of a total of 220 families 37 showing feeblemindedness in one, two, three or four individuals (16 per cent.), thirty-six families revealing alcoholism, and fifty-six families exhibiting insanity, eccentrics and psychopathic personalities.

We are not pessimists, but we think the eugenists have bitten off more than they can chew. Yet despite the facts cited we despair of no one but the eugenists themselves. We have more faith in the questionable stock

of the country than we have in fanatical doctrinaires. We are all for the Edwards stock on the grandmother's side, and not for the smugly respectable. If that be heresy make the most of it.

A certain eminent eugenist has recently advanced the following principles, which we think worthy of Dr. Pangloss himself: "Sincerity or insincerity, generosity or stinginess, gregariousness or seclusiveness, truthfulness or untruthfulness, are all qualities whose presence or absence is determined largely by the factor of heredity. * * * If the reactions of the organism are socially 'good,' fortunate that person; if he 'elects' to study hard and prolong his education, he does so because of a liking or inhibition for which he is in no way responsible."

From the foregoing one must infer that our morals are essentially mechanistic and fatalistic. There is, however, an abstract morality, which is decidedly not the mechanical morality of this eminent eugenist. The latter is a popular substitute for the former, thought to be "just as good" by Philistines. This eugenist's observations do apply to certain "instinctively" respectable, mentally mediocre, and morally automatic people very forcibly, in so far as dominant "good" characters, so-called, are concerned. Our eugenist would probably insist that his morality is the only real kind and therefore the only kind that should be considered, and that we are guilty of postulating something mystical in quite the futile manner of medieval theologians. However, we make bold to deny that the eugenist's "good" people represent a truly moral class. Rational morality ought to and does rest upon intellectual analysis of human experience and is not an endowment like hearing. It is an abstract thing, to be applied. One must have experience and intellect (and be aided and instructed by maturer intellects) to construct abstract ethical principles growing out of such experience and to be able to apply them. Those who are "good" because they can't help it, in our eugenist's sense, and who don't know why they are good, really represent a defective class, from our point of view. We prefer a Saint Paul, mastering his wickedness rationally.

It is as much to our credit to resist the pull of a bromidic instinct that would make us smug "goodies," or moral prigs, or involuntary religious devotees, or Comstocks, or sentimentalists, as it is to resist the pull of an alleged eugenic instinct that would make us liars, or frauds, or misers, or recluses.

Rational morality, then, is not related to mechanical reactions, nor to purely emotional stimuli, such as superstition, fear, etc. It is true that the intellectually developed and trained man is often not wholly moral in his life. Moral perceptions are true and rational and safeguarding in proportion to intellectual power, their strength also depending upon proper impartation by specialists in early life. The intellectual man who fails in his moral life is one whose intellectual power is not of the first rank or is inconstant. He permits recessive Mendelian characters of an undesirable kind, which we all possess, to demoralize him. These may be either "good" or "bad" characters, so-called.

Our eugenist assumes that "goodness," considered as a Mendelian character, is a fixed, unchangeable thing. This being so, his automatic "good" man of to-day may find his status changed to-morrow, unable himself to change, and thus one of whom time may make an actual criminal, so-called. Abrogate the sacredness of property and the criminal of to-day may rival in goodness a pioneer Franciscan.

"Only a group, only a collective body creates religion, morality, right." This group must and does lay down the canons of morality for the intelligent of every age and assist those to whom it ministers rationally to grasp and assimilate them. To be successful in its functions its subjects must be plastic, not rigid; intelligent, not mechanistic.

It is a fatally pernicious teaching to base morality upon accidental endowment. What spiritual geniuses have aimed at is the development of a rational morality, to which each age must be taught to adapt itself, even in the presence and against the pull of the *good* and bad characters of Mendel, the former not making for *real* spiritual or moral worth much more than the latter. We must master our biological deficiencies (including the "good" characters) and not allow them to master us. "Outward order and decency" is about all we could ever expect to attain under our eugenist's philosophy, and the subtle moral reasonings of Christ, intellectually and spiritually first among men, would be impracticable as regards emulation, if not meaningless incantations. "Beyond good and evil," in Nietzsche's phrase, should be our goal.

We must bear in mind that probably most if not all individuals harbor "evil" recessive characters in their organizations as well as "good." Do not all men feel the "pull," at times, of the recessive evil characters? Are not these characters subject to control? Must not control rest upon reason? That man's morality is a caricature, be he clergyman or university professor, whose control rests not upon reason but upon "dominant goodness."

Judged by the data now accumulated, how much sound heredity is there in the world? We must all be more or less tarred with the same stick. Why should the man who, could we recognize him as one only apparently "sound," with evil recessive characters, a defective in our eugenist's view, but who has attained to an understanding and application of rational morality and may be trusted to pass it on to his progeny, be refused a marriage certificate? "There is nothing either good or bad but thinking makes it so." If we are wrorg the Christian programme is a pretentious farce.

It is extremely doubtful whether legislative application of eugenic doctrines, except in gross and definitely understood instances, is a wise policy to pursue, considering the inherent biological difficulties. Why should we deliberately encourage legislative tyranny, which, by the way, can be as bad as that of any monarch. We constantly forget that "among free men legislative enactments are not more potential in combating those natural laws which govern individual and community conduct than they have been in combating other natural laws," and that "any legislative act undertaking to accomplish such a result is not law, but tyranny."

What we need more than eugenic laws is a decent social order, in which it will be possible better to master our evil tendencies. It is idle to plan for better families until we have a better world. The social forces which will give us a better world will not be due to an increase of the inherited smug goodness of our eugenist, but will be the fruit of a rational morality. Let it not be forgotten that many of the men who have moved the world to its betterment have been so-called defectives who have gotten a firm hold, despite their infirmities, upon this *abstract* thing we have discussed, and have left the world far better than they found it, which is, after all, the ultimate test of a man's worth, whether

he be a defective or not in the view of the Philistine.

Who of the mechanistic, fatalistic "good" have ever left the world better than they found it?

The muzzled dog must be a sad sight to many lovers of our closest animal friend. For the dog's tongue is an organ of perspiration, so to speak. Certainly he can't "perspire" so effectually with a muzzle compressing his jaws. The muzzle belongs in the same category as the horse's nose-bag feeder, the short check and the docked tail. There is, of course, the question of rabies prevention, but the fact remains that in hot weather particularly the muzzle is a cruel device.

It would seem as though more might be done to keep flies out of our hospitals, not only on the score of preventive medicine, but as a matter of humanitarianism. Screens are not as much in evidence as would seem necessary, even in infectious wards. In children's departments one sees little ones pestered to death. In one hospital of the greater city there is a curious custom of putting netting over dying patients, who actually need it less than those suffering consciously.

Among 5,500 men inoculated against typhoid in the Canadian Pacific Railway camps in 1911, two only contracted typhoid, while of 4,500 who had not been so protected 220 were infected. In 1913, 8,400 men were vaccinated and only one case of typhoid occurred. It is thought that this man was ill at the time of inoculation. In the same year there were 76 cases of typhoid among 2,000 not inoculated.

Scene of excitement on street near school. Interested passer-by accosts boy on edge of crowd:

"What's the row, sonny?"

"Why, th' examinin' doctors have just been here an' that's a 'physical deficient' knockin' th' stuffin' out uv a 'perfect spec'men!'"—*Life.*

Habit Forming Drugs and the Duty of Physicians When Administering and Dispensing Them.

A physician need not write out a prescription when he administers or dispenses habit-forming drugs. When administering them, he need not issue a certificate of sale or disposal, but when dispensing them, he acts in a like capacity as the druggist or retailer, and must make out the certificate, on the label or separately, containing his name and address, the date of sale and the name of the person to whom such sale is made, says former Attorney General Thomas Carmody, when asked about the requirements of the new drug act law in New York.

He adds that a physician may administer habit-forming drugs. He may also issue a written prescription for them to be filled by a druggist or other retailer, or the physician may himself dispense the drugs.

The law places no duty upon the physician when administering the drugs other than the duty of keeping a record of the name and address of each person to whom it is administered and the quantity in each case administered.

Section 246 of the law reads:

"*Prescriptions: Certificates.* It shall be unlawful for any person to sell at retail or give away any of the drugs, their salts, derivatives or preparations mentioned in section two hundred and forty-five of this chapter except as herein provided without first receiving a written prescription signed by a duly licensed physician, veterinarian or dentist. The prescription must contain substantially the following: The name in full of the physician, veterinarian or dentist issuing such prescription, his office address, his office hours, and telephone, and the name, age and address of the person to whom and date on which such prescription is issued. It shall be unlawful for any duly licensed physician, veterinarian or dentist to issue any such prescription containing any of the drugs, their salts, derivatives or preparacontaining any of the drugs, their salts, derivatives or preparations mentioned in section two hundred and forty-five of this chapter except after a physical examination of any person for the treatment of disease, injury or deformity. It shall be unlawful for any person to sell at retail any of the drugs or preparations of any of those mentioned in section two hundred and forty-five of this article without first verifying the authority of any prescription containing more than four grains of morphine, thirty grains of opium, two grains of heroin, six grains of codeine or four drams of chloral. Such verification can be made by telephone or otherwise. No prescriptions so received shall be filled out more than ten days after the date which said prescription be dated. Such prescription, from which no copy shall be taken, shall be retained by the person who dispenses the same and shall be filled but once. Such prescription shall be kept on the general prescription file and given a regular consecutive number on such file. On such prescription shall be inscribed the name and address of the purchaser making such purchase and the date upon which said sale is made. *Any person who sells at retail, furnishes or dispenses any of the drugs mentioned in section two hundred and forty-five of this chapter upon a written prescription by a duly registered physician or veterinarian or dentist shall at the time of dispensing the same place upon the package a label or deliver therewith a certificate stating the name and address of the person selling or furnishing the same, the name and address of the physician, veterinarian or dentist, upon whose prescription such sale is made, the date of sale, and the name of the person to whom such sale is made.* Any person, other than a manufacturer of any of the drugs mentioned in section two hundred and forty-five or a wholesale dealer in drugs or a licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian or a licensed dentist, who shall possess any of the drugs mentioned in section two hundred and forty-five or their salts, derivatives or preparations, shall be guilty of a misdemeanor, unless said possession is authorized by the certificate described in this section.

Mr. Carmody concludes: "The statute looks to an accounting at any hour of the amount of these drugs bought, possessed or disposed of by any person whomsoever. Hospitals, physicians, veterinarians, druggists and retailers must obtain the drugs from the manufacturer on printed order blanks furnished by the State Department of Health. (No. 247.) Every portion disposed of they must account for, leaving the balance which should remain in their hands at any time computable from the record. Possession of this balance and no more is lawful. Therefore, as every hospital, druggist, physician, veterinarian and retailer, and those purchasing from the druggist or retailer on a written prescription, must always be ready to justify their possession by a written record. So too, I think the statute intends that a person obtaining the drug from a physician should be able likewise to present written authorization for his possession of the substance.

"A physician need not make out a prescription or certificate when he administers the drug, but when he dispenses them he acts in the same capacity as any druggist or retailer, and must issue a certificate, on the label or separately, so that the individual receiving them from him may be protected in his possession from criminal prosecution under the statute."

Acute Myocardial Disease.

When the heart is weak or collapse is threatened in typhoid fever, diphtheria or similar conditions in children, this combination is advised:

℞ Caffeinæ,
Sodii benzoatis, āā gr. xxv. (1.6)
Spiritus sacchari, ℥iiss (10.0)
Syrupi tolutani, ℥iss. (45.0)
Aquæ destillatæ, ℥ij. (60.0)

M. Sig.: One tablespoonful twice a day.

(*Paris Medical.*)

The American Association of Clinical Research

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

THE SYNTHESIS OF MEDICINE.*

JAMES KRAUSS, M. D.
PERMANENT SECRETARY AMERICAN ASSOCIATION CLINICAL RESEARCH
Boston, Mass.

The synthesis of medicine, like the synthesis of any other natural science, must have laws for its points of departure, elementary principles from which the synthesis of medicine can set out on its constructive process of bringing into a comprehensive whole all the parts of medicine.

Clinicians, like Morris of New York, tell their hearers that the next step in the history of medicine is to be the synthesis of medicine and confide that this synthesis will probably be *allergism*. Whether this synthesis is to represent the point of departure for the construction of our pathologic and therapeutic facts into a science of medicine or is to comprehend all the pathologic and therapeutic facts as the ultimate expression of the science of medicine is not made plain. Allergism, Pirquet's term for the state of hypersusceptibility following second injections of sensitizing and toxic protein bodies, does not synthetize medicine in either one of the two ways open for the formation of a synthesis of medicine. Allergism takes for granted that an antigen of a first injection produces in the serum a specific antibody. On a second injection, the reaction between this antigen and this antibody gives rise to the anaphylactic symptoms. There can be no question as to the fact of susceptibility, as to the fact of hypersusceptibility of patients, both to diseases and to treatments. We know that the phenomena of anaphylaxis are not confined to injections of a given class of proteins. If we include the natural as well as the experimental phenomena of hypersusceptibility, we find that such phenomena appear also with other than merely bacterial proteins, that drugs and foods as well as sera cause sickness by repetition, that people have their individual predispositions, their idiosyncrasies, to foods and to disease, to drugs and to bacteria, to animal and to vegetable proteins. Hypersusceptibility is a fact. Serum sickness is a fact. Pirquet's synthesis, however, is a pure assumption. Pirquet assumes, first, that there is an antigen and an antibody, and, then, that the substance which sensitizes after the first injection is identical with the substance which gives rise to the anaphylactic injury after reinjection.

Investigators, like Ehrlich, synthetize, on rationalized chemical principles, remedies that are to kill the parasites that cause disease without killing the patient suffering from the parasitic disease. Ehrlich's chemotherapeutic experiments are made on animals. The synthetic combinations are then applied to human beings. The chemic syntheses appear to destroy all the parasites in animals. A number of parasites is left undestroyed in men. Ehrlich recognizes the fact that men have idiosyncrasies, forms of supersensitiveness not present in animals. If the chemic medicine does not destroy all the parasites, but destroys only, say, 95 per cent., the remaining 5 per cent., explains Ehrlich, may succumb to the influence of the antibodies which are produced by the destruction of the parasites—a pure assumption. Ehrlich here assumes, in opposition to his own lateral chain theory, that parasites circulate within the human organism freely as parasites, without abstracting from or adding to the properties of the parasite-incorporating organism. He assumes that antibodies are formed by the destruction of the parasites. He assumes that these antibodies will destroy those bacteria that his synthetic drug could not destroy. He assumes that the human organism, at first helpless against the invasion and consequent multiplication of a parasite, later becomes self-sufficient when this parasite becomes somewhat reduced in number though still vastly more numerous than it was at the moment of its invasion.

Men of less account and of no account, disciples of Ehrlich who do not even take the pains to understand Ehrlich, pseudoinvestigators and research men who are not even investigators, go farther and declare that the living organism takes care of both parasite and drug, that nature is not an auxiliary but the force of cure, the therapeutic agent, in all cases. This is not merely an assumption, it is a sheer mistake, based on a logical misconception if not on direct ignorance of physical and chemical matters, an ignorance of what constitutes nature herself. These men assume that individual nature is identical with all-embracing nature, and then sit on the two horns of a dilemma. When they grasp the horn of individual nature they cannot explain why it is that she fails so frequently, why it is that there is disease, for if individual nature were as selfsufficient as all-embracing nature undoubtedly is, there would be no failing health, there could be no disease. Selfsufficient individual nature would not wait for disease-producing foes to produce disease. She would effectively combat disease-producing foes and not permit them to produce disease. Selfsufficient individual nature would not wait for medication from an external source before she would assert herself for health. The fact that she so frequently fails in her power to protect herself effectively against disease-producing foes and that when diseased, she, as a rule, fails to assert herself for health before the exhibition of therapeutic agents from an external source proves that the healing self-sufficiency of individual nature is a figment of unharnessed imagination. Her selfsufficiency extends only to a certain point. On the other hand, when men grasp the horn of all-embracing nature, they must, of necessity, include the exhibition of therapeutic agents as belonging to all-embracing nature just as they include the diseased organism itself. They must explain why nature, which embraces all existence and all elements of existence, should apply to the diseased organism and not to therapeutic agents introduced and incorporated in that organism; why, with her all-pervading power, nature should allow healthy organisms to become diseased and should not restore diseased organisms to health until after the administration or application of therapeutic agents. The fact is that what applies to a whole does not necessarily apply to a part of that whole; that, while all-embracing nature is selfsufficient for all her purposes as a whole, individual nature as a part of all-embracing nature is only a part and is constantly brought in contact with other parts for adjustment and readjustment in the realm of all-embracing nature, and adjustment and readjustment of parts mean a process of change in both constitution and energy.

Psychologists and pseudopsychologists, full of the present flush of the psychologic era, take the psyche of

*Read before the Fifth Annual Meeting of the American Association of Clinical Research at Chicago, on November 7, 1913.

man as the whole of man, and the redirection of his will by thinking and feeling, affirming and believing as the process of cure, all externals as non-existent or non-essential. There can be no question that the well-directed release of the inhibiting power of the active conscious will over latent subconscious mentalities is very often, especially in non-somatic mental and moral diseases, a beneficial therapeutic act. The assumption, however, that, because well-directed thought calls out well-directed feeling and well-directed feeling calls out a well-directed will, the somatic base of the psyche of man is a negligible quantity, non-existent or non-essential, is one of the follies of the human mind, forgetful of the fact that as emotions or feelings can be called out and directed by thought so thoughts not only can be, but are called out and directed by sensations, results of the messages of the external world. The interplay of the external world with the internal world through our sensations and of the internal world with the external world through our volitions is one of the assured facts of human existence.

The reason why the history of medicine presents an array of false medical syntheses is because those occupying themselves with the synthetizing process take for their principles assumptions that take things for granted and therefore can be successfully denied, instead of truths that represent the constant relations of the undeniable facts, the nexicnoumena of the undeniable phenomena, of medicine. Before we can enter upon a successful synthesis of medicine, we must have before us the undeniable principles, the constant relations of the phenomena or facts of medicine that compel the synthesis. The constant relations of the facts as well as the facts themselves of medicine can be obtained only through analysis of the data of medical experience. By analysis, we go from the complex to the simple, from the concrete to the abstract, from data to facts, from facts to laws and principles of facts. By synthesis, we go from the simple to the complex, from the abstract to the concrete, from principles and laws to facts and to data of facts. A synthesis of medicine without a preceding analysis of medicine can give rise only to false conclusions, elements of a false science, since the synthesis is based simply on unproved hypotheses, on assumptions. Because of this, the American Association of Clinical Research has insisted and still insists that the synthesis of medicine must follow the prerequisite analysis of medicine.

The synthesis of medicine is to be made not like the syntheses of new organic compounds, results frequently of chance discoveries of new reactions or of deliberate attempts to produce new compounds of definite compositions. The data of medicine are here. They do not need to be discovered. They need to be understood. They cannot be made anew. They are here for us to find within them the permanent facts, laws and principles. We must resolve the present status of medicine, the science and the art of medicine as practised at the present time, into the component parts, trace these parts to their source, and ascertain the concepts, propositions, reasons, laws and principles underlying our pathologic and therapeutic phenomena. Then in setting out with our ascertained principles we must synthetize the facts of medicine not with a deliberate attempt to produce a new medicine like a new compound of a definite chemical composition but rather to let the synthesis bring forth whatever truths there are in medicine irrespective of age, source, or composition.

The synthesis of medicine must not assume and need not assume as a principle what is later to be proved as a principle; must not first assume and then inquire as though the synthesis were a proposition of mathematics. In mathematics it is permissible to inquire into those numbers upon which a number assumed depends until some number is reached which has already been ascertained and from which the number assumed may be seen by necessary consequence to flow. Medicine, however, is not mathematics. Medicine is not chemistry. The compounds of chemistry are of less complexity and furnish readier objects for analysis into elements and a correspondingly readier synthesis of elements into new compounds. In medicine, we are dealing with vital and viable compounds of extended variability, unfixed and apparently unfixable for exact reproduction. These variable compounds of vital medicine we must fix before we can successfully decompose them into their true elements, before we can presume to obtain the principles necessary for a true synthesis of medicine.

The facts of medicine must be fixed in their natural relationship, undisturbed by factitious accompaniments. Those who adhere to the common practice of single investigators, investigating what they please, taking methods of teaching and practice for methods of investigation and methods of investigation for methods of practice and teaching, adhering so closely to the classical forms of observation and experiment that the purpose and field of clinical research are, if not entirely overlooked, most certainly confused with the purpose and field of medical instruction and practice; those who, knowing that they are dealing with the viable and vital conditions of practical medicine, attempt to analyze these conditions before they are fixed in their natural relations, firmly fixed to avoid question as to their actual existence and interpretation, cannot hope to make an effective synthesis of medicine. The fundamental observations must be unquestionable. To be unquestionable, they must be made conjointly, simultaneously, independently by two observers on the same subject at the same time. The observations must be fixed in their natural relationship to preserve their identity. The conclusions hitherto obtained rest entirely on analogical observations when they ought to rest on identical ones. It is the necessarily inconclusive analysis of analogical observations and experimentations that calls for control cases (Miller, *Journal American Medical Association*, September 21, 1912), for animal experiments in the study of clinical problems and for a restudy of the same problems in the clinical subject (Hewlett, *Journal American Medical Association*, November 1, 1913). If we are to have theoretic certitude we must first have evidential certitude, and we must have theoretic certitude if we are to have certitude for our synthetic conclusions.

This evidential certitude, with the necessary fixation of the apparently unfixable clinical phenomena in their natural relations, undisturbed by factitious accompaniments, is obtained by the *conjoined clinical method* adopted by the American Association of Clinical Research for the observation of the fundamental clinical phenomena of medicine. The adoption of this method has now been urged upon the profession for several years. It is still the most important method for clinical research, but in the search for immediate results which animate pseudoinvestigators, methods which are much more important than results are neglected and often thrown to the winds. It is difficult to arouse the profession to anything that does not assure immediate results, yet the great unsolved problems of medicine are still with us. The facts of medicine must be established. The relations of these facts must be established. The

principles which permit us to use related facts with precision in the everyday business of medical life must be established.

The conjoined clinical method, exemplified by two observers making their observations simultaneously and independently on the same subject and both recording simultaneously and independently of each other the presenting phenomena with completeness and in the natural order of their appearance, pursues the examination of clinical subjects on the objective basis of natural history and not on the subjective basis of speculative philosophy, takes nature in her native garb, as she is and not as we may want her to be. For clinical research, we must listen to what nature herself has to say and not, as in simple experimental investigations, let her give answer only to what we ask. Experiments are artifices. The answers these draw from nature are not free from unwarranted interruptions. For a complete answer we must not interrupt nature with artificial, hypothetic questions until she has given all that she has as her answer to natural observations. To attain scientific certainty in all matters pathologic and therapeutic, is not only the object of clinical research but must be comprised in a true synthesis of medicine. The results of clinical research must be abiding. We must have the cold facts to decide what they are based on. We must have theories that best explain those facts without undue simplification. We must split the facts into parts and wholes, causes and effects, contrasts, similarities, contiguities. From observation of organs and functions, we reach laws of structural organization and functional processes. We select those facts that are related and exclude those facts that are not related. We decide facts to be important or trivial by their relations. Theories must be in harmony with the facts known and to be known, and help to explain or arrange them; hence we must first know the facts and then their theoretic or abstract accompaniments, if we want a synthesis of medicine that is to be more than a speculative proposition.

The synthesis of medicine, then, resolves itself into three distinct categories:

First, the synthetic principles as points of departure;

Secondly, the synthesis proper as a movement from abstract synthetic principles to concrete synthetic results;

Thirdly, the synthetic facts and data as results or points of arrival.

I. Synthetic Principles.

The synthetic principles, the points of departure for a synthesis of medicine, must be found in the necessary abstractions obtained by the analysis of the concrete fixed data of medicine through the logic of traduction and induction.

By traduction, we reason without alteration of generality from object to object, make an immediate inference from example and by analogy, classify particulars.

By induction, we go from particulars to generals, from individual objects to qualities they impliedly possess, from concrete facts to abstract generalizations, abstract ideas which are stripped of their concrete accompaniments, general inferences which, if the induction is perfect, will serve as necessary and certain summaries of all possible particulars.

In analyzing the conjoined data of medical experience, we divide and partition wholes, reduce concrete particulars to abstract qualities. We trail the concrete facts of medicine into whatever field of the abstract it may be necessary to go, without disturbing the natural relations of the facts of medicine, without haste, without hypothetic expectations, without surprise when reaching unexpected results.

We take the unquestionable data of medical experience, the things of medicine as nature presents them, the notiora naturae, and reduce them into their natural parts. Of a natural part it is impossible to predicate the partitum, the source of that part, as it may be possible of a logical part. Logically, a species may be a genus and a genus may be a species, but in a natural division, with which we are here concerned, the root that is separated from the tree cannot be dignified with the term of tree. The trunk is not the tree. The branches are not the tree. The leaves are not the tree. The fruit is not the tree. The root, the trunk, the branches, the leaves, the fruit and what is commonly possessed by all the natural parts of a tree, all the parts and common qualities of the parts together make the tree. The data of medicine are divided into observations, observations are subdivided into facts, and from the facts of medicine we obtain their orderly relationship, and a constant relation found in the sequence or mutuality of the facts of medicine represents a law, and a law may serve as one of the synthetic principles of scientific medicine as laws serve as the synthetic principles of other forms of natural science, f. i., the laws of atmospheric pressure serve as the synthetic principles of the science of meteorology, the laws of heat as the synthetic principles of the science of thermodynamics, the laws of sound as the synthetic principles of the science of acoustics.

To synthetize the natural parts of medicine into a natural whole, a natural science of medicine, we do not require preconceived notions and do not require to dignify preconceived notions into principles. We merely require that we have all the parts of medicine, that we know what is commonly possessed by these natural parts of medicine, and the ***synthetic results*** will be more than mere definitions of medicine, more than demonstrations, symbols or names.

While a definition is a sort of synthesis, in principle and result, a delimitation, it is merely a logical synthesis, a logical delimitation. For the logic of it, we must know the genus and the difference before we can define a species. If we do not know the genus and the difference or where we cannot know the genus and the difference, definition is impossible. We may resort to synthetic subterfuges and indulge in the arbitrary formation of genus and species, in the colligation of separate parts, in the demonstration of objects, and the substitution of points, impressions, symbols or names for what escapes all logical attempts at synthetic definition or delimitation, but nothing is gained by these ***synthetic processes***. The history of medicine is full of arbitrary formations of genus and species of medicine. Both the science and the art of medicine have suffered extensively because of these arbitrary products, and it need hardly be said that the American Association of Clinical Research does not propose to go to these sources of medical error. The colligation of the individual parts and relations of the parts of medicine merely gives an objective demonstration, and a demonstration of medicine is one thing and the synthesis of medicine is another thing. The synthesis of medicine is more than a demonstration of a particular object of medicine, alone or as a part of a class of objects of medicine through physical, psychical, logical, narrative or descriptive association. Certainly the synthesis of medicine cannot be the narration of medical particulars and generalizations to establish a point, nor can the synthesis of medicine consist of the enumeration of even essential

relationships, resemblances and differences, of medical particulars and generalizations to create an impression. Nor can the synthesis of medicine be encompassed by a symbol or by a name. The *synthetic result* must be a science embracing all the proved concepts, ideas, reasons, and laws of medicine, all the facts and relations of the facts of medicine, applicable with certainty to the daily needs of human life, and the *synthetic process* of medicine must accordingly be the natural process of science, going from the abstract principles obtained by previous analyses to the concrete data of scientific application.

To obtain, then, for a proper synthesis of medicine, the abstract points of departure, we must enter upon a thoroughgoing analysis of the practice of medicine, we must observe the clinical phenomena, the disease phenomena in an all-inclusive sense. We must separate from our observations the actual occurrences, the facts, and our preconceived notions, adventitious matters not belonging to the facts.

As facts, we may recognize subjective symptoms, physiologic reactions or pathologic changes with or without supposed cause or causes, when they are the spontaneous description of complaints for which relief is sought, when they appear and reappear with certain regularity, within certain limits, at the same locality, in a given sequence, under characteristic circumstances and when there are objective signs pointing also to the same pathological process, the process in flux.

As facts, we may recognize objective signs of form, number, color, size, position, sound, odor, resistance, heat, sensibility, expression and movement, when they harmonize with the subjective symptoms, when they are clear and distinct, described minutely and comprehensively or brought within ocular demonstration by tests, specimens, photographs.

The pathologic process in situ, expressed by the objective signs, and the pathologic process in flux, expressed by the subjective symptoms, together make the individual *disease*.

From the various antecedents—the past history of the individual, his family, people and race—we may infer the *disease cause*, i. e., the predisposing cause or necessary antecedent, the exciting cause or occasion, the accident which is neither cause nor occasion, the cause that is primary, that cause that is secondary, the cause that is no cause at all—by our knowledge of the effects that the antecedents under consideration have produced or are capable of producing.

The symptoms and the signs of the disease give the pathologic, the location of the disease gives the anatomic, the cause and the occasion of the disease give the etiologic *indications* or justification for treatment.

From the indications taken for treatment we may infer the *intended effect* vital or remedial, pallative or curative—of the therapeutic applications made; and from the *actual treatment* given we may infer the method pursued, hygienic, surgical, medicinal.

From the results or *actual effects* of the treatment—recovery or non-recovery, improvement or non-improvement—we may finally infer the *absolute* and *comparative values* of the therapeutic methods in general and of the therapeutic applications in particular.

Thus we do not trail the concrete data of medicine through unnecessary ranges of the abstract. Throughout our analysis, we anticipate nothing. We merely follow the concrete, fixed phenomena of medicine into whatever range or ranges of the abstract necessity may lead us and when we have made a complete and satisfactory analysis of the practices of medicine we shall unquestionably find ourselves face to face with two ultimates of abstract elements:

First, Laws encompassing the pathologic facts of medicine;

Secondly, Methods underlying therapeutic applications to pathologic facts.

II. The Synthetic Process.

The synthetic process takes laws and methods as the points of departure, and proceeds to build upon them structures of concrete facts and data through the logic of traduction and deduction.

Traduction depends upon the presence of fact and fact or of law and fact. We perceive the facts and then associate them in classes on the basis of their natural and experimental relationship as to content, causation, contrast, similarity, contiguity, the five bases of relationship the constitution of the human mind has hitherto made it possible for us to infer from the facts of nature as signs of underling laws of action.

For deduction, we take the presenting law of action and a presenting fact as the major and the minor premises of a particular or concrete conclusion, and thus produce a new fact or the proof of an old fact.

In the analysis of medicine, we trace the concrete facts of medical experience into the necessary ranges of the abstract, take the data of medical experience, the things of medicine as nature presents them, the notiora naturae, and reduce them into their natural parts, strip them of the concrete accompaniments until we arrive at ultimate laws and methods as the abstract elements. In the synthesis of medicine, we take these laws and methods, the nobis notiora, the things of medicine as we know them, the relations of the facts of medicine and raise upon them, not arbitrarily but naturally, even though it may be experimentally, the facts of medicine, add phenomena as attributes of concrete data falling or recognized to fall, completely or partially, under those laws and methods, until we have concrete complexes of facts and data as synthetic results.

It is in the synthesis of medicine that natural observation, so essential to be left undisturbed for correct analysis, may have to call to its aid factitious observation, otherwise known as experimentation. In natural observation, we observe phenomena as they present themselves in existing objects and observe the relations of sequence or mutuality existing between the phenomena. Observation, with a claim to scientific exactness, accepts nothing as a fact that is not a fact, presents nothing less than all the essential facts for inference. For natural observation, no assumptions are needed. In experimental observation, however, we produce artificial conditions and observe the resulting phenomena in connection with a formulated hypothesis for inference. The experiments are not an end in themselves. They, like the observations of clinical research, serve only as means to an end, a means to a more correct, a more comprehensive knowledge of pathologic and therapeutic medicine for the cure of disease or the relief of suffering. Experimental investigations forming part of the synthetic process of clinical research are not fatuous experimentations. The experiments necessitated by the synthesis proper of medicine are conditioned, *first*, by the laws and methods obtained through analysis of the unquestionable data of the current practices of medicine and, *secondly*, by the phenomena presenting themselves under those laws of pathology and those methods of therapeutics which are serving as the principles of synthesis. In other words, the proved synthetic principles of pathology and therapeutics, and not fatuous assumptions, must serve as our hypotheses for

these synthetic experiments. It is these laws and methods that must explain all our facts, and must exclude every other explanatory hypothesis. Conclusively, we can explain a fact only by another larger fact. A particular fact may be explained by another particular fact analogically when reasoning by traduction, but the many and various facts that go to make up the sciences of medicine can be explained only by the largest proved inductions. The principles by which the phenomena of medicine are to be explained, by which the nature and the genesis of the different modes of practice are to be described in a synthesis of medicine, must be established as true and not be merely assumed to be true.

Our synthetic process, then, begins with the laws of pathology and the methods of therapeutics, the constant and experimental relations of facts necessarily obtained by the conjoined analysis of the current practices of medicine, laws and methods inherent in data of medical experience.

A. The Laws of Pathology, the constant relations of pathologic facts, must be anatomic, physiologic, etiologic. They must be representative of anatomic, physiologic, etiologic uniformities of agreements and differences.

The facts of pathology must be developed under these anatomic, physiologic, etiologic laws, as other facts of natural history are developed, as parts of whole concrete complexes, from class, order, family, genus, down to species and individual. Attributes of anatomic structure and physiologic function, phenomena of form, number, color, size, position, sound, odor, resistance, heat, sensibility, expression and movement make concrete accompaniments for the simple abstractions serving for our points of synthetic departure in pathology. The pathologic phenomena are perceived as realities independent of inference. We note their manner of appearance, how they occur. We experiment. We have the hypothesis in some one of the laws of pathology. We have or make the conditions. We ascertain under what circumstances the phenomena occur. In experiments, natural or factitious, if a condition is uniformly present in the production of an experimental result that condition may be taken as the cause and the result as the effect, provided full allowance is made for all possible variations by adequate verification. We note in what order the phenomena occur. We thus have the connection of facts, their relations, the terms related, the facts themselves. The relations that one set of facts may entertain with another set of facts give importance and unimportance to the facts. Without close relationship, facts may throw light on other facts, by analogy or contrast, or, at least, give certainty that certain facts have occurred or are true. Pathologic knowledge is phenomenal knowledge, and our phenomenal knowledge is limited to the recognition of related terms, related facts.

The facts of pathology are to be found, first and foremost, in patients. A patient is diseased. His disease is recognized, as everything else is recognized in this world, by certain effects. The patient makes subjective complaints. He discloses objective signs. The symptoms and the signs of the patient are his disease effects, and the disease effects are the facts of pathology. Anatomic and histologic, physiologic and etiologic conditions, internal and external physical and chemical, mineral, plant and bacterial, protozoic and animal conditions furnish facts of pathology, concrete accompaniments to the laws of anatomic, physiologic, etiologic pathology—anatomic and physiologic facts on the natural basis of content, i. e., of parts as parts of wholes, as facts of mass; etiologic facts on the basis of natural or experimental condition, i. e., as effects of causes and causes of effects, as facts of causation.

B. The Methods of Therapeutics, the experimental relations of pathologic facts, must be hygienic, surgical, medicinal. They must be representative of hygienic, surgical, medicinal relations of pathologic facts.

Therapeutic methods have no facts of their own. The concrete accompaniments of therapeutic methods are the anatomic, physiologic, etiologic facts of hygienic, surgical, medicinal pathology, facts obtained, as we have seen, under the law of content or mass, i. e., as parts of wholes and under the experimental law of conditions or causation, i. e., as effects of causes and causes of effects. The methods of therapeutics are based upon the inevitable comparison of quantitative facts of mass with facts of mass and of qualitative effects of causation with effects of causation. Therapeutic methods bring pathologic facts into hygienic, surgical, medicinal relationship.

Hygienic pathology consists of faults of hygiene brougth on by excess, defect, perversion of normal physiologic ingredients—proteins, carbohydrates, fats; nitrogenous, caloric, psychic food values; oxygenating factors of somatic and psychic nutrition, heat, energy in aeration, climatic elevation, latitude, soil, temperature, humidity, sunlight, seasons, winds, etc. The excess, defect, perversion is ascertainable quantitatively and precisely with instruments of precision. The mathematical method of addition suggests itself in the presence of deficiency of hygienic ingredients; the method of subtraction suggests itself in the presence of excess of hygienic ingredients; and the method of reversion suggests itself in the presence of perversion of hygienic ingredients. The therapeutic methods of hygienic pathology are based upon a quantitative comparison of masses, of pathologic facts of mass, and are, therefore, methods of computation—mathematical additions, subtractions, reversions or rearrangements of hygienic ingredients for the normal, physiologic requirements of patients.

Surgical pathology consists of topic, plastic, trophic, toxic disorders and diseases with excess defect, perversion of mechanical elements of structure and function—demonstrable solutions of continuity in wounds, fractures, dislocations, deformities; demonstrable new growths in tumors; demonstrable necroses in dystrophies, suppurations, ulcerations, etc. The excess, defect, perversion is precisely and quantitatively ascertainable in the mechanical manipulations of the demonstrable lesions with which surgery has to deal. The methods that suggest themselves are those of mechanical mathematics: addition, to cover deficiency; subtraction, to remove excess; reversion, to correct perversion. The lips of wounds are sutured, added. Fractured fragments are placed in apposition, added. Dislocated parts are reduced, subtracted. Deformed structures are reconstructed, reverted. Tumors are excised, subtracted. Necrotic tissues are resected, subtracted. Gangrenous limbs are amputated, subtracted. Infected parts are drained, subtracted. The therapeutic methods of surgical pathology are based upon a quantitative comparison of masses, of pathologic facts of mass, and are, therefore, methods of computation—mechanical additions, subtractions, reversions or rearrangements of mechanically disarranged structures and functions of the human organism.

Medicinal pathology consists of topic, plastic, trophic, toxic disorders and diseases that are non-computable on the basis of the quantity of physiologic ingredients necessary to hygiene or on the basis of con-

tiguity of the mechanical elements necessary to anatomic structure and physiologic function, pathologic complexes of vital, mathematically non-measurable, mechanically non-manipulable effects of disordered and diseased life, series of symptoms and signs recognized and recognizable as effects of disease. The methods that suggest themselves are those that place the vital effects of disease in relation with vital effects of medicines or vice versa, medicinal effects in relation with disease effects. These methods are manifested throughout the whole history of medicine, in empiric, theoretic, scientific medication. As a conjoined synthesis of medicine can have in view only scientific medicine, only scientific therapeutic methods are here considered. The therapeutic methods of medicinal pathology are, of necessity, based upon a qualitative comparison of effects, of pathologic facts of causation—qualitative similarity, contrast, contiguity of pathologic and medicinal symptomcomplexes, in short, the methods must be those of symptomsimilarity, symptomcontrariety, symptomdissimilarity.

C. The Deductions or Conclusions from the laws and facts of pathology and from the methods and experiments of therapeutics cannot be teleologic notions of speculative medical philosophy, such as allergism following reinjection of protein bodies, a vis medicatrix naturae of individual life, immunity from antigens through antibodies, materialistic negations of psychism and mentalistic negations of matter.

The synthetic conclusions must of necessity be complex data of objective pathology and objective therapeutics, embodied in systematized doctrines and restated in the light of conjoined clinical research, so that every integral part of the science and the art of medicine falls into its natural place as an object of medical practice and teaching.

The synthetic process, however, is not limited by the intent and the divisions of medical practice and teaching. Only the scope of pathologic laws and the development of pathologic facts into complex data of medical experience through the proved hygienic, surgical and medicinal methods of therapeutics can limit the synthetic process of conjoined clinical research.

With the recognition of the facts of pathology, we have our phenomenal knowledge of observational and experimental pathology. With the comparison of pathologic facts, we obtain their quantitative relations of mass and their qualitative relations of effect, and we have the pathologic facts related to the laws of pathology and the methods of therapeutics. Pathologic laws and facts are coalesced into complex concrete data of objective pathology. Therapeutic methods and pathologic facts are coalesced into complex concrete data of objective therapeutics.

III. The Synthetic Result.

The synthetic result must be a systematized body of objective knowledge of pathologic science and therapeutic art of medicine, co-ordinate doctrines of pathologic laws and pathologic facts and of therapeutic methods and related pathologic facts.

It is not necessary to anticipate the synthetic result of conjoined clinical research. It may not be premature, however, to declare:

1. That scientific pathology depends on the objective view that disease is not an entity separate from the living organism, but merely an alteration of the vital structures and processes of health manifested by symptoms and signs, a subjective and objective pathognomic complex.

2. That scientific therapeutics depends on an exact knowledge of hygienic, surgical and medicinal phenomena, on the objective recognition of pathologic phenomena and of their corresponding indications for hygienic, surgical and medicinal methods of treatment.

Clinical research as represented by the American Association of Clinical Research is a necessary universal obligation. The undertaking before the medical profession is the scientific establishment of the true principles and methods of medicine.

419 Boylston Street.

The Sixth Annual Meeting.

The program for November 5, 6, 7, 1914, at Baltimore, Maryland, is being completed with many notable contributions. Headquarters will be at Hotel Emerson, Baltimore and Calvert Sts. Sessions will be held at Loyola College, Calvert and Madison Sts. Clinics will be held at Maryland General Hospital, Linden Ave. and Madison St.; at Biedler-Sellman Hospital, 2714 N. Charles St.; at Howard Kelly Hospital, 1418 Eutaw Place. A banquet and ball will end the three-day program. Applications for membership may be addressed to the Permanent Secretary of the American Association of Clinical Research, James Krauss, M. D., 419 Boylston St., Boston.

American Proctologic Society.

At the sixteenth annual meeting, held at Atlantic City June 22 and 23, the following officers were elected: President, Louis J. Krouse, Cincinnati; Vice-President, Collier F. Martin, Philadelphia; Secretary-Treasurer, Alfred J. Zobel, San Francisco.

Executive Council: Jas. A. MacMillan, Detroit; Louis J. Krouse, Lewis H. Alder, Jr., Philadelphia, and Alfred J. Zobel. The place of meeting for 1915 will be San Francisco.

The following is an abstract of the principal papers read:

Samuel T. Earle, of Baltimore, presented Extracts from the Report on Proctologic Literature from March, 1913, to March, 1914.

Frank C. Yeomans, of New York City, discussed "Coccygodynia: A New Method of Treatment by Injections of Alcohol."

The diagnosis is established by a thorough examination, both general and local. Local examination is made by inserting the index finger into the rectum and palpating the coccyx between it and the thumb outside. The soft parts intervening between the coccyx and anus are now compressed and the point of maximum tenderness is thus located, usually just beyond the tip of the coccyx. Proctoscopy rules out rectitis.

The writer uses a treatment based on the suggestion of Schlosser in 1907, of injecting 70 to 80 per cent. alcohol in sensory nerves, thereby causing their degeneration as practiced with marked success in trifacial neuralgia.

The technique is simple and can be carried out in the office under strict aseptic precautions. The patient with empty bowel is placed on a table in the Sims' position and the skin about the coccyx painted with tincture of iodine. A 2 c.c. Luer or similar syringe is filled with 80 per cent. alcohol and armed with a two-inch needle. The right index finger is now inserted into the rectum and the point of maximum tenderness is determined by counter pressure with the thumb outside. Maintaining the finger in the rectum to guard against puncture and as a guide, the needle is introduced through the mid-line directly to the painful spot, and 10 to 20 minims of solution are injected slowly.

The needle is withdrawn and its puncture sealed with collodion. The pain from the injection lasts a few minutes and is followed by a dull ache which may last a day or two. From three to five injections are usually required at intervals of about one week.

The writer reported seven cases, all women, treated from two months to four years ago. They required three, four or five injections each at intervals of about one week. Relief was prompt and complete and all the patients have remained well.

(*Continued on p.* 20.)

(*Continued from p. 328.*)

J. A. MacMillan, of Detroit, Mich., read a paper on "The Technique of the Perineal Operation for Cancer of the Rectum."

In every case a preliminary colostomy must be considered imperative. The colostomy provides the only means of discovering whether a radical operation is justifiable or not, supplies physiologic rest for the affected part, and later provides for aseptic conditions in the surgical field.

After thorough divulsion a circular incision is made at the muco-cutaneous line and carried up to the lower surface of the levator ani. Most of the dissection can be done by the fingers. It is not necessary to destroy the external sphincter. This step of the operation exposes a circular area of the levator ani about an inch and one-half wide. Before proceeding further the hemorrhage should be controlled and the location of affected glands determined. The next step of the operation includes the division of the levator ani and the removal of lymphatic glands. The peritoneum may be entered anteriorly and separated laterally, which will leave the meso-sigmoid as the only attachment of the bowel. This should be divided as far from its colonic attachment as possible in order to secure the retention of a good vascular supply for the proximal end of the bowel after the excision.

When the gut can be drawn down sufficiently to permit the excision of the affected portion and the attachment of the lower edge of the mucous membrane to the skin, excision is done and the sutures placed. Free drainage is necessary.

The colostomy is not closed until the patient has been up and about for several weeks.

V. Lee Fitzgerald, of Providence, R. I., discussed "Myasthenia Gastro-Intestinalis."

By this term is understood a weakness of the muscles of the abdomen, stomach, intestines, and their supporting ligaments, with a consequent downward displacement of any or all of the viscera.

Many patients suffering from myasthenia in its different forms are in danger of having suspensory or other operations performed upon them, whereas the intestinal stasis can be entirely removed by medical measures and the baneful effects of the underlying ptosis entirely removed. The general aim in the treatment is the relief of the stasis, and the restoration of the prolapsed viscera to as near their normal position as possible.

For the past two years the writer has been treating cases of myasthenia as follows: The patient is given a thorough examination, including that of the gastric contents, urine and feces. In case of myasthenia of the stomach with dilatation and prolapse the patient is put to bed and fed through a duodenal tube six or seven times a day, depending upon the amount of food needed to nourish the patient. This gives the stomach a complete rest, and it comes up into normal, or nearly normal, position in from ten days to two weeks.

Dwight H. Murray, of Syracuse, presented his "Further Observations on Pruritus Ani."

In this report on the fourth year's work of original research on pruritus ani, Dr. Murray found little more to give the profession beyond the confirmation of the work of previous years.

Twenty new cases were examined during the past year. In all but two of these streptococcus fecalis was demonstrated.

It has been found that occasionally the bacterial growth seems to be so lacking in strength that it is difficult to obtain an autogenous vaccine. It is not known why this is so unless it is owing to the very low grade inflammation produced by germs not so active as those found in many other infections.

During this year two cases were treated by other physicians who tried to follow his technique, but in neither case was improvement manifest. The author took up the treatment and improvement was marked. The only point of difference in the technique that he could discover was that the others injected the vaccine deep into the muscle instead of directly into the skin or immediately beneath it.

During the past year the author had additional proof that the itching does not extend appreciably above the white line of Hilton. No unfavorable sequelæ arose from the vaccine injections. There is now no hesitation in running the dose up to two billion or more dead bacteria. One injection resulted in formation of a jelly-like material in the tissue, but this was absorbed. Some time ago a similar swelling was opened and found to be sterile, and no trouble has resulted.

Samuel T. Earle, of Baltimore, reported that carnotite, a radio-active mineral, was used in the treatment of eight cases of pruritus ani and was found to be a very satisfactory palliative remedy.

Alfred J. Zobel, of San Francisco, took up the "Treatment of Amebic Dysentery by Emetin Hydrochloride."

He stated that in emetin hydrochloride we have a reliable, non-toxic drug possessing a definite specific action; which may

(*Continued on p. 22.*)

The Physician's Library

The Text-Book of Chiropody. By 30 contributors. Edited by Maurice J. Lewi, M. D. Cloth. 1166 pages. Illustrated. New York: The School of Chiropody, 51 E. 125th St., 1914.

The star of chiropody commenced to ascend when Dr. M. J. Lewi resigned the secretaryship of the New York State Board of Medical Examiners after 20 years' service, to become president of the School of Chiropody of New York. It was a hazardous experiment but Lewi like, proved successful. The school has more than realized the most optimistic anticipations. With a faculty of ten physicians and fifteen chiropodists and under the rigid inspection of the State Board of Medical Examiners, the school and its graduates have made good and have altered the "status of chiropodists from craftsmen to scientific practitioners."

In blazing this trail into an untravelled realm, text books were sadly lacking. As the Editor says: "The literature of the subject reeked of ignorance and charlatanry. The nomenclature of disease was barren of any features suggestive of accuracy; the medications employed were designated by catch-penny terms or phrases."

In an earnest effort to correct these shortcomings this book resulted and it is a task well done. Aside from a comprehensive and interesting history of chiropody, it contains enlightening and succinct epitomes on anatomy, histology, physiology, chemistry, materia medica, bacteriology, pathology, hygiene, surgery and dermatology. These chapters contain everything on those branches that the chiropodist needs. In addition, 17 chapters are devoted to practical chiropody and the student is given a wealth of the most valuable material for his future use.

If it is possible to teach one a profession in a single volume, Dr. Lewi has reached the goal. He had to dispense with an index and abbreviate other matter, but he has turned out a really monumental work. There are minor matters one could criticise. For example, in discussing local anesthesia Drs. Boeker and Levy recognize novocain as only one-seventh as toxic as cocain and quite as efficient in anesthetizing properties. This is the opinion of Crile, Bloodgood, the Mayos and most famous surgeons. Dr. Stern thinks it weaker in action than cocain, and decidedly irritating. Other slight discrepancies are noted, as always occurs when many men contribute, but on the whole the statements are in full accord with the latest views in medicine.

The chapters on chiropody are noteworthy for their practical excellence. Other chapters that attract favorable attention are the chapters on anatomy, histology, chemistry, materia medica, pathology, surgery and dermatology.

The text book will doubtless give way some day to different books on the various branches of the art, but meanwhile it will stand as a tribute to the contributors, to the Editor, who has exercised such judgment of selection and patience in editing, to the science it teaches and last but not least, to the printer, whose skill in making a handsome volume, is evident on every page.

Psychology and Mental Disease. By C. B. Burr, M. D., Medical Director of Oak Grove Hospital. Cloth. 235 pages. 4th edition. $1.50 net. Philadelphia: F. A. Davis Co., 1914.

The fourth edition shows improvement over the others. New material has been added and the book will much better serve its purpose, as a text book for students and nurses.

(*Continued from p. 20.*)

be administered hypodermically, and yet which will permit of a sufficient dose being given without causing any depression, nausea, vomiting or local reaction.

He reported two interesting cases in which the disease was present in one individual for ten and in the other for fourteen years. Under the influence of emetin, within two or three days amebæ, blood, mucus, froth and foul odor disappeared from the dejections and their number greatly decreased; the racking tenesmus, bearing down feeling in the rectum, the colic, and the abdominal tension, discomfort and gurgling absolutely ceased. Proctoscopic examinations revealed the favorable influence of the drug upon the amebic ulcerations. No amebecidal irrigations were employed.

He reported other cases seen by him in consultation which demonstrate most forcibly the necessity for a proctoscopic examination of the bowel and a microscopic examination of the feces in every instance where a diarrhœa lasts longer than a week, even though the patient has never lived in nor visited a locality where the disease is known to exist. He advised that emetin should be given for at least three or four months at intervals before the patient should be considered free from the possibility of a recurrence, even though he is clinically cured and the amebæ cannot be longer found in the stools.

Wm. M. Beach, of Pittsburgh, stated in a paper on "Amebic Dysentery and Its Treatment": (1) Amebic dysentery in the early stages may be cured with emetin. (2) In cases somewhat advanced emetin is efficacious and at least clinically curative. (3) The use of the duodenal tube, through which to introduce solutions of emetin to any portion of the intestinal tract, should receive trial and consideration. (4) For rapid cure, and control, cecostomy or appendicostomy is the best measure in advanced and chronic cases. (5) Direct irrigation from above is superior to rectal injections, in that it is less painful and more thorough. (6) The appendix should be removed in most cases of amebic dysentery. (7) The so-called specific emetin can be easily applied in weak solutions.

L. J. Hirschman, of Detroit, took up "The Pathologic Sigmoid Colon and Its Surgery."

Studies with the fluoroscope and the sigmoidoscope have shown that true prolapse and invagination of the sigmoid colon into the rectum is not an uncommon condition. The author advocates shortening the mesentery of the sigmoid by attaching the mesentery of the invaginated or prolapsed portion to the root of the mesentery of the descending colon.

In a number of cases of obstruction to normal defecation this obstruction will be found in women who give a history of a disturbed puerperium. Radiographic studies of these patients who give a history of chronic obstipation accompanied by pain and marked tenderness in the left lower abdominal quadrant and the region of the womb and broad ligaments, more often the left, show the presence of adhesions which angulate, displace or bind down the sigmoid. The cure of this condition involves the relieving of the adhesions and the covering of raw areas with omental, epiploic or mesenteric grafts, or the excision or short-circuiting of the sigmoid. Another class of adhesions of the sigmoid seriously obstructing defecation is caused by adhesions to the abdominal wound following laparotomy.

Hypertrophy or redundancy of the sigmoid colon is another pathological condition which has not infrequently been met with. When the walls of the bowel contain a large proportion of unyielding fibrous tissue, short-circuiting is insufficient and excision is indicated. In malignant growths of the sigmoid colon excision with immediate anastomosis is the ideal indication.

When inoperable it is the author's practice to always make the colostomy in the median line. This is done for the following reasons: (1) The median incision is the best for exploratory purposes. (2) One has the choice of any part of the colon in the making of the colostomy. (3) One gets just as good adhesion and union, with no more liability to hernia, as in the side. (4) The patient is better able to cleanse and dress the colostomy in the median line. (5) It takes the colostomy opening away from the neighborhood of the iliac crests, and allows of the better fitting of retention apparatus and colostomy shields. (6) Control of a median colostomy is just as satisfactory as the lateral.

Hirschman has found no difficulty in securing colostomy control by using a small rubber catheter in the mesenteric opening beneath the spur and encircling the upper limb of the colostomy with this catheter, drawing it just snug enough that the mucous surfaces appose. The catheter is held in this position by a seraphine snap and is released by the patient when he wishes to defecate or expel flatus.

Eye-Strain and Occupational Disease.

In 1910 the Census Bureau issued a classified list of between 7,000 and 8,000 separate and distinct occupations. Dividing these occupations into groups, designed to indicate their roles in creating or increasing the disease directly or indirectly the result of eye-strain, it has been shown that the least eye-strain will, as a rule, be found in that group classified as farmers, agricultural laborers, common laborers, soldiers, and railway workmen; the most eye-strain found in the group classed as students, clergymen, all professional men, clerks, engravers, draughtsmen, and the like, says the *Evening Post*.

In the first group, composing 40 per cent. of the population, 1 to 20 per cent. have ocular or eye-strain diseases. In the last group, composing 20 per cent. of the population, 80 to 100 per cent. have ocular or eye-strain diseases. Eye-strain increases with work at near range—as in office, store, and home—and the modern growth of population is largely taken up by the town and city. The nearer the work, and the more minute, the greater the eye-strain. The more constant this focalization, the more severe the eye-strain. With decrease of the illumination below a high physiologic standard there is a geometrical increase of eye-strain. It is a well-established fact that either the over-use of the eyes or the use of eyes under bad conditions may give rise to eye-fatigue or to eye-strain, and many eye specialists believe that at least 80 to 90 per cent. of headaches are dependent on eye-strain. It is impossible to ignore the probability that many individuals working by gaslight, or even by electric light, in dirty, unpainted, overheated rooms, with impure air and excessive moisture, for ten hours a day, or merely for the last two hours during the day, use up a great deal of nervous energy, and suffer from eye-fatigue or eye-strain and its consequences.

Of late years increasing attention has been given to working conditions in factories, shops, and offices in regard to illumination, ventilation, hours, and character of work, and this is bound to result in greater efficiency and less time lost in sickness and nervous disorders.

Aseptic Catheters.

W. P. Willard, San Francisco, says: "I have bags made of muslin 2 cm. wide and about 75 cm. long. It is important to have them wide enough so that the bags fold up readily as the catheter is pushed forward. The catheter containing the wire is placed in the bag. The bag is then wrapped in paraffin paper and fastened in several places with adhesive strips. If a piece of wood is fastened on the outside of the paper at the tip end of the catheter, bending of the tip is prevented. It is well to mark on the paper the size and style of the catheter. The package is now placed in an autoclave for twenty minutes with 8 or 10 pounds pressure. A number of catheters can be sterilized at one time and kept indefinitely without injuring them. When the cystoscopist is ready to use a catheter the paper is torn off and the wire removed. The tip is worked out of the bag and introduced into the cystoscope and pushed forward by holding the catheter through the bag. The instrument is introduced and the catheter manipulated through the bag. When the catheter is in the desired position the bag can be slipped off and the instrument removed."—(*J. A. M. A.*)

Pathology of the Prostate.

E. O. Smith, Cincinnati, notices the imperfect description of the prostate in the text-books etc., and quotes Nonne and Schüle as to the positive cure of logically from five foci from which the five lobes of the organ start. It reaches its full normal development about the twentieth year and the various lobes normally have no distinct capsulary separation from each other. Its close relation to the posterior urethra renders it subject to infection and the most frequent invader is the gonococcus. This organism may for considerable periods give rise to no serious symptoms, but may be lurking and easily called into action. The seminal vesicles are also frequently infected and the prostate is credited with the mischief. It is possible for them to be pathologic with a normal prostate. Tuberculosis of the prostate may be primary, but is generally preceded by disease of the kidneys or of the epididymis. Calcareous deposits are not infrequent in late adult life. Many men past 50 years of age have urinary disturbances, and the great majority of these are due to pathologic changes in the prostate gland. It must not, however, be taken for granted that this is always the case. The senile changes that occur are given as adenoma fibrosis, and malignant disease. Any one or all three may be present and all the five lobes be affected except that portion below the ejaculatory ducts, the posterior lobe. The middle lobe is the most frequent site of adenomatous growth, the anterior lobe seldom, and the lateral lobes rather frequently.

The enlargement of the gland which normally is extravesicular begins to encroach on the bladder and many hypertrophies become so large that they act as a decided rectal obstruction. Sometimes the adenomatous growths form a ring constricting the urethra, troublesome and hard to remove. The so-called prostatic bar is either not prostatic or not a bar. In the first case it is a fibrous bar developed about the internal sphincter from chronic inflammation of the posterior urethra and occurs earlier in life. If of prostatic origin, it is not in the form of a bar, but is an enlargement of the middle lobe, changing the shape of the internal meatus from a normal funnel appearance to that of an inverted crescent. There is no true normal prostatic capsule, and the surgical capsule which surrounds the adenomatous growths is the prostate crowded to the side, and shows, microscopically, compacted stroma and gland tissue. Not infrequently a patient with marked prostatic symptoms is relieved by a few days' rest in bed with free catharsis and continuous bladder drainage. The symptoms were due to venous congestion. Smith does not believe that prostatic hypertrophy undergoes malignant degeneration. Cancer of the prostate begins as such and practically always in the posterior lobe. Tuberculosis of the prostate is usually secondary to that of the seminal vesicles and is seldom found alone.—(*J. A. M. A.*)

The Latest in Electrical Matters.

A new illustrated catalogue of McIntosh Electro-Therapeutical apparatus has just reached the desk of the editor.

The many new designs in *x*-Ray transformers, portables, sinusoidal appartus, wall plates, universal modes, tankless air pumps, etc., show the progress made by this concern. A copy will be mailed free to those physicians who mention the one item of most interest and address McIntosh Battery & Optical Co., 322 W. Washington St., Chicago, Illinois.

Dr. G. B. H. Swayze Dead.

Dr. G. B. H. Swayze, one of the founders of the Medico-Chirurgical College of Philadelphia, is dead in that city, aged 82. He was graduated from Jefferson in 1859, and during the Civil War was assistant surgeon of the 178th Pennsylvania Infantry. He was a practitioner in Philadelphia for over 40 years and was prominently identified with the medical life of the city. Dr. Swayze was the first dean of Medico-Chi and was long its professor of obstetrics and gynecology. He contributed largely to medical journals, including the MEDICAL TIMES. He is survived by the widow and two sons, one of whom is Dr. B. W. Swayze of Allentown, Pa.

An Ally Worthy of Confidence.

It is nearly 20 years since Gray's Glycerine Tonic Comp. was first placed at the service of the medical profession. During all this period it has maintained the standards that first attracted attention and the busy practitioner has ever found it an ally worthy of confidence. It never disappoints and in the treatment of atonic conditions, particularly of the gastro-intestinal tract, it is often the one remedy that will produce tangible and satisfactory results. The physicians who does not use it in his practice is denying his patient many benefits that can be obtained in no other way.

Plantar Warts.

R. L. Sutton, Kansas City, Mo. (*J. A. M. A.*, April 25), says that while the subject of plantar warts has been carefully studied by several authors within recent years, the true nature of the condition is seldom recognized even to-day. For this reason he reports a case which is the most extensive he has ever seen and which he has studied microscopically. These cases are notoriously resistant to treatment, and recurrence frequently takes place after excision. Of all the methods tried he gives first place to Pusey's carbon dioxid snow, fulguration second, and Roentgen treatment third. Before the snow or electric current is applied, the epidermal lids of the little tumors should be removed by a 10 per cent. salicylic plaster. Roentgen treatment is especially applicable when there are numerous lesions, which frequently disappear as if by magic. In the case reported all three methods were used and the cure was apparently complete in three weeks.

Cod Liver Oil as a Nutrient.

In passing judgment on cod liver oil, it should be remembered that it is a food agent, and not a drug. If this is done, the value of this nutrient will be much better appreciated. Since cod liver oil is an agent that must be given over long periods of time, it is very essential that a palatable product be chosen, otherwise the gastric apparatus will be disturbed. Cord. Ext. Ol. Morrhuae Comp. (Hagee) is a very valuable preparation of the oil and is in wide use among the medical profession. Containing, as it does, all the active principles of the oil, its effectiveness is in no wise diminished by reason of the process it has gone through, on the contrary its very palatability has added to its therapeutic value by making it possible to give it under the most trying circumstances, and contributing to its ease of assimilation. Cord. Ext. Ol. Morrhuae Comp. (Hagee) will be found of high worth in states of under nourishment.

Special Anesthesia Supplement.

Recent years have been marked by some important contributions to the theory and, practice of surgical anesthesia, but there has been lacking a journalistic medium. The *American Journal of Surgery* will be expanded to meet this need. Beginning with the October issue and quarterly hereafter, this journal will publish a 32-page supplement devoted exclusively to anesthesia and analgesia. This supplement will be a complete journal containing editorials, contributed articles and communications, abstracts, transactions of Societies and book reviews.

It has been adopted as the official organ of the American Association of Anesthetists and the Scottish Society of Anesthetists and it will also publish the transactions of other like societies.

The editor will be Dr. F. Hoeffer McMechan of Cincinnati, and he will be assisted by Drs. J. T. Gwathmey, New York; W. D. Gatch, Indianapolis; W. H. De Ford, Des Moines; C. K. Teter, Cleveland; E. I. McKesson, Toledo; I. C. Herb, Chicago, and Yandel Henderson of Yale.

War on Sickness.

War has been declared on industrial sickness by the American Association for Labor Legislation. Following the successful campaign for accident compensation which now has captured the principal states, a committee of the nation's experts who have been working quietly on plans for a year and a half, declares that sickness insurance must be made compulsory with emphasis on medical care in order that it shall lead to a campaign of health conservation similar to the "safety first" movement resulting from accident compensation.

The committee includes such leading authorities as Henry R. Seager, Miles M. Dawson, Edward T. Devine and Dr. I. M. Rubinow of New York, Charles R. Henderson of the University of Chicago, Henry J. Harris of the Library of Congress, and Carroll W. Doten of Boston, and has the co-operation of expert legislative draftsmen and leading representatives of workmen and employers.

The Association for Labor Legislation called the first American conferences on Occupational Diseases in 1910 and on Social Insurance in 1913, and announces it is now drafting bills for a vigorous legislative campaign to initiate the movement for sickness insurance in the United States.

The part that the nucleus plays in the development of the cell was discovered by Schleiden in the early thirties, and was corroborated by Schwann at that time, an interesting account of this being found in Victor Robinson's "Pathfinders in Medicine." The cell contents, which he called gum, were carefully worked over by others, each decade finding some new feature, until in time it was pronounced the essential substance of all living cells.

Some Valuable Mechanical Laxatives.

Russian Oil and Agar are among the latest offerings of Parke, Davis & Co. They are mechanical laxatives of a high order of merit and are certain to attract widespread attention from the medical profession.

Russian Oil, P. D. & Co., is a hydrocarbon oil distilled from Russian petroleum, generally known in Europe as paraffin oil. The product is not a laxative in the sense of stimulating the bowel by local irritation, its function being rather that of an intestinal lubricant. It passes in toto through the alimentary tract, mingling with the food in the stomach and upper digestive tract, with the result that the feces become thoroughly lubricated and pass through the lower bowel more rapidly and are expelled from the colon promptly and easily. Not the least valuable feature of the product is its protective effect on the stomach and intestine, it being well known that abrasions or irritations of the mucous surfaces permit bacterial infection and general toxemia. If desired the oil may be taken with a pinch of salt or a dash of lemon juice, or it may be floated on a glass of water, wine, milk or other beverage. The dose recommended for adults is two to three tablespoonfuls morning and night, for the first two or three days. Later the amount may be diminished. Parke, Davis & Co. supply Russian Oil, Aromatic, and Russian Oil, Unflavored. Physicians, when prescribing, should indicate which product is wanted. Agar, is a Japanese gelatin derived from seaweeds. It freely absorbs water and retains it. It has the additional property of resisting the action of the intestinal bacteria, and of the digestive enzymes as well. Hard and dry fecal masses are reduced to a softer consistency, normal evacuation resulting as a consequence. One or two heaping tablespoonfuls, according to individual requirements, may be taken once a day, preferably in the morning. It may be eaten with milk or cream, or mixed with any cereal breakfast food, with the addition of salt or sugar to make it palatable.

Goiter in Syphilis.

Oscar Clark, Rio Janeiro, Brazil (*J. A. M. A.*, April 11), reports a case of exophthalmic goiter which he considers a late clinical manifestation of hereditary syphilis. The symptoms began in a woman aged 24, about five years before she was seen and the case gradually progressed until it became extremely aggravated. All three symptoms the exophthalmos, tachycardia and palpitation were present, though the former was very slight. Dr. Moniz, a well-known Brazilian physician, who was called in, incited by the "Olympic forehad" (*crâne natiforme*) of the patient and the history of epileptiform convulsions at the age of 12, tried the Wassermann test which was strongly positive, both in the patient and her mother. Laboratory tests excluded other conditions. The specific treatment was successful both in relieving the symptoms at once and also in a relapse a year later.

A Mouth Wash in Fever Cases.

In all fever cases where the tongue is coated, the lips dry and cracked and the teeth covered with sordes, the use of some cooling and soothing mouth wash would seem to be indicated. Glyco-Thymoline in a 25 per cent. solution with cold water fills this want perfectly. Its frequent use is grateful to the patient and at the same time a great factor in relieving the condition.

Threaded Mercury Bichloride Tablets.

An innovation in the making and marketing of mercury bichloride tablets is being made by Sharp and Dohme. A new and novel device is in the threading of the tablets, the thread running through each tablet joining it to others in the container, a bottle of unique design. Another feature of these tablets which is to further safeguard their use is the trefoil-clover-shape.

Specifically the threading will render it impossible for any one to use them without noting the unusual attachment, and the trefoil shape will identify them in the dark. Further each tablet has the word Poison plainly stamped across its face; last but not least, is the peculiar shape and other characters of the container: a bottle of odd shape with the word Poison in large raised letters on the corners which will, when taken in the hand, disclose its unusual and dangerous contents. Any one of these features should insure against accidents. The Threaded Mercury Bichloride Tablets are to be marketed only in bottles of twenty-five tablets each.

Polyposis Gastrica.

J. S. Myer, St. Louis, gives quite a detailed account of a case of multiple adenoma of the gastric mucosa diagnosed during life and operated on. The operation was followed by death twelve hours later, permitting a thorough autopsy and examination which revealed little besides the stomach conditions. The case is, he thinks, the only one except that of Chosrojeff that permitted a diagnosis before autopsy. This was made by the presence of a small polyp obtained by lavage and a large one in the feces. He thinks it possible that much help could be obtained in future cases by roentgenoscopy and that achylia with unusual mucus production should be considered suspicious, and in severe gastric hemorrhage in a patient with achylia gastrica, with normal or increased motility, polyposis is more than probable. Invagination of the pylorus by a polyp could hardly be mistaken for any other condition after one has experienced the peculiar palpatory findings here met with. The etiology is obscure, but in the case described a syphilitic gastritis seems the probable cause.—(*J A. M. A.*, Nov. 29.)

Wassermann-Fast Tabes.

D. M. Kaplan, New York, describes a type of tabes in which, in spite of treatment, the Wassermann test remains positive and reports the results of observation of two cases which represent the Wassermann-fast variety of the disease. It is sometimes possible to obtain a weak result after very vigorous treatment and very rarely even a complete negative Wassermann, but this does not last and the serologic action is positive again in a week or two. These are the cases which later develop taboparesis. Whether salvarsan or any other undiscovered remedy will ward this off time will tell, but Kaplan does not seem to believe it. He thinks, however, they should be given the benefit of the treatment as repeated doses of neosalvarsan have produced encouraging chances in the psychic manifestations of the disease. He says, "as the serology of a tabetic inclines toward assuming the Wassermann-fast tendency, it is my opinion that the clinician should be on the lookout for clinical evidence of an approaching taboparesis." —(*J. A. M. A.*)

A New Hospital.

The Charles B. Towns Hospital for treatment of drug addiction and alcoholism has been permanently located at 292 and 293 Central Park West, New York. This splendid property situated opposite Central Park, was originally planned and equipped for a private hospital and is arranged with single rooms for patients of moderate means and with rooms en suite for those desiring such accommodations.

The Charles B. Towns Hospital is an open institution, enabling the physician to keep in close personal touch with his patient. The alienation of a patient from his physician is impossible.

Physicians are kept informed as to the progress of all their cases, from the first to the final dose of medication and a complete bedside history is always open to their inspection.

The brevity of the Towns method makes it a definite hospital work. Its success has extended over a period of fourteen years and it is a recognized scientific treatment for drug addiction and alcoholism.

A Timely Question.

What are you doing with your Drug and Alcohol habitues? Professional opinion has advanced to the position of regarding these addictions as a disease which is amenable to treatment. Sanitarium care is necessary to the successful handling of such patients, and with the aids accorded by a well equipped institution, the results of treatment are very satisfactory.

At the Pettey & Wallace Sanitarium, Memphis, Tenn., the most approved methods are employed and the work is carried out under the personal supervision of Dr. Pettey, who originated and published to the profession the now generally accepted method of treatment. When referring patients of this class, do not forget that the man who originated the treatment and who devotes his entire time to it is better equipped to do successful work than one with less experience.

The complete work of Dr. Pettey, a volume of more than 500 pages, can be had of him, or of the publisher, F. A. Davis Co., Philadelphia.

Chronic Bronchial and Pulmonary Affections.

There is a considerable number of chronic bronchial and pulmonary disorders in which the administration of iodine in some form should prove serviceable. Thus in chronic bronchitis and pleurisy, in conjunction with the syrup of iodide of iron, the iodide of potash will prove of benefit. An excellent means of exhibiting the iodides in such cases is offered by Iodia (Battle). This preparation will also prove of advantage in other pulmonary or bronchial disorders in which an indication for iodine may exist. A point of superiority in Iodia (Battle) is its palatability and ease with which it is tolerated over long periods.

Albumin Milk.

The following method of preparing albumin milk, used at St. Ann's Infant Asylum, St. Louis, is recommended by Dr. J. M. Brady, as time and labor saving. "1. Bring a quart of sweet whole milk to the boiling point; raw milk is not used because its curd is much tougher. 2. Cool to 100 F. 3. Add one tablespoon essence of pepsin and allow to curdle. 4. Pour off the whey and suspend curds in muslin bag two hours. 5. Stand bag containing curds in 8 ounces boiled cool water. 6. Remove the bag from the water, allow as much water to drip as will and place curds in sieve. 7. Add pint of fat-free buttermilk to sieve containing curds; it will be found that the curds will pass through in two to three minutes, which must be repeated three or four times. 8. Turn the bag inside out and return to the 8 ounces of water so as to obtain all the curd. 9. Pour in the sieve the 8 ounces of water which was used to soak the curds. 10. Add enough water so the whole measures a quart. 11. Add the percentage of maltose-dextrin desired and put on ice. We are able to prepare 10 quarts of this food after the curds have drained and soaked in less than ten minutes with the minimum separation of the fat."—(*J. A. M. A.*)

The operation for appendicitis was first performed in this country in St. Luke's Hospital, in Denver, Colo., January, 1885, yet in 300 B. C. Sussita, an Indian army surgeon, wrote concerning a laparotomy and Praxagaras a little later did a laparotomy for intestinal trouble. *When Did it Happen?* Published by Reed & Carnrick.

Examine the urine in every case of neuritis to exclude the presence of glycosuria.